COMPUTERWORLD

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NEWSPAPER

CW NEWS IN BRIEF

Vote Fraud Alleged, List Tampering Cited

NEW YORK – A 13-year-employee in the computer section of the Board of Elections here has been charged with conspiring to insert fraudulent names into the city's computerized voter registration lists.

Esther Washington, 44, an administrative assistant in the computer section, was accused of unlawfully conspiring with others unknown to defraud the U.S. of its rights to have voters registered lawfully and correctly.

The complaint filed by the Federal Bureau of Investigation alleges that two witnesses overheard a telephone conversation between Washington and an unidentified Geraldine Daniels in which the insertion of 100 punched cards, containing the names of unregistered voters into the voter registration lists was discussed.

Geraldine Daniels, the only other person mentioned in the case, has not been identified or arrested, sources in the U.S. attorney's office here said last week.

Washington works in the section involved with the tabulation of election data, but does not work in the section directly involved with the preparation of the voter registration lists, board officials said.

An employee in her section would not have access to the voter registration files, they said, unless they had permission or the cooperation of someone in the other department.

GOP Letter Campaign Moves Into High Gear in 11 States

WASHINGTON, D.C. – The Committee to Reelect the President mailed more than 12 million computer-generated letters last week to every Republican and many Democrats in 11 key states in the opening round of a program that could cost at least $6 million by election day.

The letters, all with praise for President Nixon and criticism for Sen. George McGovern, will be signed by politicians with clout in the local area, but not by the President (related story on Page 7).

On the Inside This Week

Carriers Must Provide Total Service, CSMA Told — *Page 16*

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125 Includes VS

'Subprocessors' Spark Smallest 370

By Michael Weinstein
Of the CW Staff

WHITE PLAINS, N.Y. – With the announcement last week of the new IBM 370/125, users can get virtual memory capability on a 96K real memory machine for the price of a 32K 360/30.

The system continues IBM's trend toward bringing control devices for outside peripherals within the central processor and uses independent "satellite" subprocessors to handle program instruction, I/O functions and system diagnostics.

Main memory capacities of 96K and 128K are available with a basic cycle time of 480 nsec for 2 bytes of data, almost twice as fast as core memory of the 360/25. Like other models in the 370 series, faster metal oxide semiconductor (MOS) technology is used in both main and subprocessors.

In addition to main storage, the Model 125 provides a standard 12K (22-bit words) of reloadable control storage (RCS), expandable by increments of 4K to a maximum of 20K words.

RCS, which holds the microcode that controls the virtual memory operation, relieves main storage of the necessity of holding code needed to run emulation programs, monitor system performance, execute on-line diagnostics and other related system functions. Code is loaded from a "floppy" magnetic disk.

(Continued on Page 2)

370/125 provides direct interface with peripherals.

DPMA, ACM Plan Joint Certification Foundation

By E. Drake Lundell Jr.
Of the CW Staff

PARK RIDGE, Ill. – A Computer Foundation to promote and develop personnel certification programs for all computer users is currently being discussed by two major societies in the computer community.

The Data Processing Management Association and the Association for Computing Machinery are jointly sponsoring the initial development to outline the charter and structure of the proposed Computer Foundation.

Many people have felt that certification efforts have been held back in the past because they were only sponsored by one society, the most notable effort in this field being DPMA's Certificate in Data Processing (CDP).

If the initial charter for the foundation is approved by the boards of each organization, the DPMA would immediately turn over the responsibility for designing and administering the CDP exam to the new group. It would also turn over responsibility for its Registered Business Programmer's Examination to the foundation, sources said.

But that would only be a first step, according to Herbert Safford, DPMA international president. The new group would also develop programs like the CDP for other areas of the business, he indicated.

In addition, Safford said "vertical" organizations, such as those in banking and medicine, would be invited to join the foundation and develop certification programs for specialists in those fields which could then be administered by the foundation.

The recommendation for the new foundation was made by a special DPMA Certification and Testing Advisory Committee, which included membership of most of the major societies in the computer field as well as representatives from industry and government.

The establishment of the special committee by DPMA was in recognition that the CDP program "would only reach its maturity and full acceptance when not under the complete control and administration of the DPMA," Safford said.

The new foundation idea, Safford said, would probably have an easier time getting grant and foundation money for its program than any individual society would since it would represent the interests of the entire community.

After its proposal is drafted, it will be submitted to the ACM board in December and to the DPMA executive council in February.

'Public Records' Draw Criticism; Redefinition Needed, Panel Told

By Edward J. Bride
Of the CW Staff

BETHESDA, Md. – "Public record" information draws more complaints than investigative information, because of inaccuracies and incomplete records. As a result, a new definition of public record may be needed to diminish or prevent abuses of computerized personal information.

Several witnesses before a government computer advisory committee played variations on that theme here recently, as the Department of Health, Education and Welfare's (HEW) investigation of public and private data banks continued.

David Storm, assistant vice-president, First National City Bank, New York, acknowledged that committee members were concerned that "the computer is making public information too public," but the concern was much deeper than that.

The controversy around the use and definition of public records was summarized by David Link, dean of the Notre Dame Law School, who said an "incomplete record is really not a public record," and should not be disseminated.

Link proposed that any incomplete arrest record, i.e., any record without a final disposition, should not be disseminated at all, in order to prevent errors in judgment based on false information.

Making court records available for public scrutiny is a 19th century concept implemented to protect people from false arrest, secret trial and from double jeopardy, the government panel noted,

(Continued on Page 3)

CW Photo by Edward J. Bride

The HEW computer advisory committee heard several witnesses voice differing opinions on the value of public-record information. The 25-member group is investigating the trend toward personal data banks (related stories on Page 4).

DEC Unpackages 4 Business Systems

By Don Leavitt
Of the CW Staff

MAYNARD, Mass. – Digital Equipment Corp. has repackaged several of its minicomputers and broadened its software support to offer four separate series of DEC Datasystems designed specifically for business DP.

Built around the DEC PDP-8 and PDP-11 minis, the systems have a range of capabilities, from single-user dedicated tasks to multi-user interactive time-sharing and data-base management.

One of the new offerings, the Datasystem 500, has several of the software support features of IBM's System/3, although a DEC spokesman said his company is not looking for a confrontation with IBM. Rather, he said, the Datasystem 500 simply offers an alternative to the S/3.

The Datasystem 300 Series is a family of three models based on the PDP-8/e, with a new Commercial Operating System, COS-300. COS-300 includes the first DEC-supported version of Dibol, a variant of Cobol that had previously been available for the PDP-8 through the DEC Users Society.

Other COS-300 elements include the "first" DEC-supported sort/merge utility, almost a necessity for business DP, and foreground/background capability. The foreground can be used for data-entry operations while the background handles batch work, a DEC spokesman suggested.

General-Purpose Systems

The Datasystem 500 is expected to become a series of general-purpose systems, built around the PDP-11 family of minis. Ultimately this series will include both batch and on-line multiple terminal capabilities with which users can build a distributive DP system, or which can function as a stand-alone CPU for the smaller user.

The initial Datasystem 520 is a single-user batch-oriented model including a 32K PDP-11 with 2.4M characters of disk storage, a CRT display and keyboard, card reader, line printer and the Commercial Operating System (COS-500) software.

COS-500 is structured around DEC's previously available DOS, but has batch support features as well. RPG-II, compatible with IBM S/3 implementation, and Fortran IV are both available, as is a macro assembly language and sort/merge facilities.

COS-500 utilizes an Indexed Access Method (IAM) for its files which is, by design, directly compatible with the same access technique on the S/3.

Datasystem 700

The Datasystem 700, again based on the PDP-11, utilizes DEC's two- or three-year Resource Time-sharing System (RSTS) software to provide inexpensive, interactive facilities for on-line data management, the firm said.

The 700 can be configured for two users, with no more than 28K characters of storage, or for 16 terminals, all of which may run separate interactive tasks, in 124K characters of memory.

RSTS programs are written in Basic-plus, an enhanced version of the language developed at Dartmouth. As with most Basics, this allows the interactive preparation of programs.

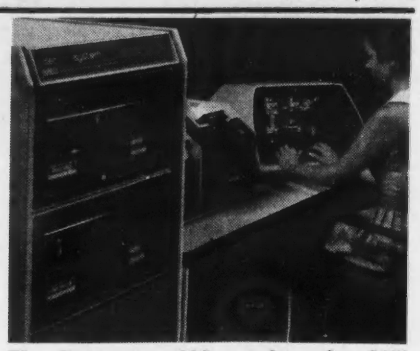
DEC Datasystem 800s are PDP-11 or PDP-15-based data-management systems designed specifically to handle on-line information and retrieval by many simultaneous users. This series uses the Massachusetts General Hospital Utility Multiprogramming System (Mumps) software developed in the 1960s to control large-scale data bases.

It represents the first time Mumps support has been implemented on the PDP-11, the company noted.

The Datasystem 300, including both hardware and software, ranges in cost from $28,834 to $32,485. COS-300 can be licensed for use separately by current PDP-8 users for $5,000.

The 500, on a turnkey basis, costs $52,220. Again, COS-500 is available for current PDP-11 installations for $6,500.

The Datasystem 700 Series ranges from $60,000 to $150,000 depending on the configuration selected, and the 800 line ranges from $55,000 to $200,000.



The Datasystem-520 consists of a 32K processor, two 2.4M byte cartridge disk drives, a 300 card/min reader, CRT, 132-column printer and the Commercial Operating System.

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New 370/125 Includes 'Satellite' Subprocessors

(Continued from Page 1)

The Model 125's central processor consists of a main processor surrounded by independent satellite processors, all contained within the computer mainframe. The distributed subprocessors each have their own data storage and logic and provide for independent handling of program instructions, I/O functions and system diagnostics.

CRT console replaces lights and buttons usually found on computer consoles.

Each subprocessor has its own data path to the system's main storage to reduce interference between processing elements trying to access main storage simultaneously. Peripherals can be directly attached to the Model 125 via the subprocessors.

This represents the first time IBM has used autonomous separate processors to control data flow, program control and peripherals, the firm said.

Operational control of the 370/125 is by a CRT console that replaces the lights and switches usually found on computer consoles. The unit can display any data entered through the console keyboard and can show internal status. It can also be used to obtain answers to inquiries from the on-line disk files.

Up to 400M characters from disk storage – IBM 3333s – can be directly accessed via an integrated attachment, eliminating the need for a separate data channel or control unit. Users can have either two, three or four drives, each with 100M bytes of storage capacity.

In addition to the disk drives, other peripherals – including magnetic tape drives, punched card units, printer and communications terminals – can be attached without the need for separate data channels or control units.

An optional integrated magnetic tape adapter enables the Model 125 to operate with the IBM 3410/3411 magnetic tape subsystem. Up to six tape drives can be included in a subsystem, with data transfer rates of 20- (4-drive maximum), 40- or 80 kbyte/sec.

Up to 22 data communication lines can be attached to support up to 16 start/stop lines and up to six bisynchronous lines.

Shipments for the Model 125 are scheduled to begin in April 1973. Typical monthly rental will range from $8,207 to $13,794 with purchase prices ranging from $377,815 to $602,620.

The recently announced DOS/VS which will support the 125's virtual storage capability will become available in June 1973.

Model	370/125	370/135	360/30	360/40
Main Storage (K Bytes)	98-131	98-245	16-65	32-262
Typical System Monthly Rental	98K $8,207	144K $16,500	32K $8,400	128K $18,700
Basic Read/ Write Time (μsec)	.48	.275 - 1.45*	1.5	2.5

* depends on type of data or instruction read.

Chart compares the 370/125's size, speed and cost with other IBM systems.

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HEW Committee Told of 'Incomplete' Public Records

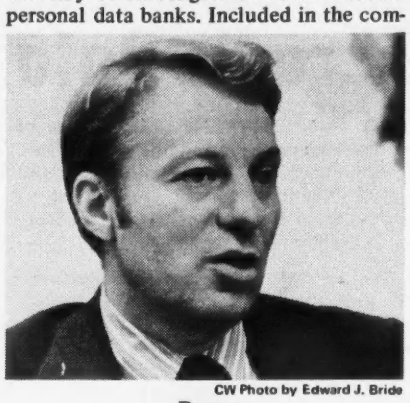
(Continued from Page 1)

but many additional goals can be served by aggregating this data with computers.

Personal profiles can easily be created by massaging public record information that heretofore was difficult to correlate, the panel agreed.

The new definition and uses of public records were one item in the lengthy discussions held by the HEW group, formally known as the Secretary's Advisory Committee on Automated Personnel Data Systems.

The 25-member group meets about monthly to investigate the trend toward personal data banks. Included in the committee's scrutiny are government, police, financial, medical, educational, and other computer applications.



CW Photo by Edward J. Bride

Davey
"... many complaints"

Public Record Complaints

Gerald Davey, a former executive with TRW Credit Data and currently president of Medlab Computer Services, claimed a disproportionately high number of complaints about public record information have been voiced.

About the time he left TRW, the system was handling about a million inquiries a month, committee member Davey related. The data files included about 7% public record data, yet 24% of the complaints expressed were in this area, he said.

This problem relates to the incompleteness of these records, generally blamed on the police and the courts.

The committee heard several witnesses testify that public information is valuable for investigating "credit risks," employment candidates or for use as pretrial sentencing aids. For example, a representative of the financial community indicated that a history of nonpayment suits, no matter how they were decided, might make an individual a bad credit risk.

A history of arrests might also make a person a bad employment risk, other witnesses claimed.

Sharp Division

There was sharp division among committee members and some witnesses on the cause of incomplete trial or arrest records, with the police and court representatives blaming each other.

The issue of public record information impacts both the criminal and civil areas of litigation, witnesses noted. While the relatively easy access to this information is one area of concern, there was also some alarm expressed at the inaccuracy of this data.

Dr. Robert Gallati, committee member and director of the New York State Identification and Intelligence System (Nysiis), said it was "about time... the courts are finally getting concerned" with entering dispositions into criminal records.

Noting that the FBI's two main computer files – the file of stolen property and wanted persons, plus the "rap sheet" file of criminal histories – are completely dependent on states for accuracy, Gallati said the "full burden" must be on the courts.

Judge Harold H. Greene of the District of Columbia Superior Court said that in his highly computerized system there is "no excuse" for incompleteness of files, since dispositions are entered as cases are decided.

Another witness claimed that many times, even if police are informed of a disposition, "they are not prepared to do anything with it."

Larry Polansky, deputy chief court administrator in Philadelphia's Court of Common Pleas, said he knew of 18-month-old records of a rap sheet nature that are incorrect in police files, despite periodic updates provided by the court.

The Philadelphia court system is used to aggregate public record information for credit, inquiries and other public uses, such as employment referrals. While Polansky claimed unauthorized uses are prevented through either software or procedures, a law student on the government committee apparently succeeded in compromising the system.

Unauthorized Inquiry

J. Taylor DeWeese telephoned the court while the hearings were in progress, pretending to represent a construction company inquiring about criminal records of two potential employees.

While it took him 20 minutes to find the right office, it only took him four additional minutes to find out that neither he – DeWeese – nor his law school roommate have convictions in Philadelphia.

There apparently was a difference of opinion on whether DeWeese really accessed the data he wanted; his experiment might have been more convincing had he been able to receive conviction information, Polansky noted.

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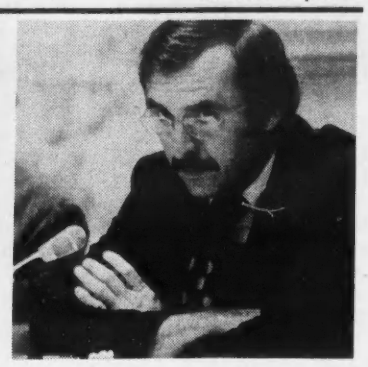
Professor Joseph Weizenbaum of MIT, Commissioner Jane Hardway, Tennessee State Department of Personnel and Guy Dobbs, Xerox Computer Services vice-president, listen to representatives of the financial community testify

CW Photos by Edward J. Bride

Gentile

" . . . determine life style"



McLean

"... making the judgment"

Public Called Apathetic to 'Other' Uses of Credit Data

By Edward J. Bride
Of the CW Staff

BETHESDA, Md. – "A great deal of a person's life style can be determined by tracing his checks," according to John Gentile, president of the National Association for State Information Systems (Nasis) and a member of the HEW computer advisory committee.

Even so, the public does not appear concerned over possible secondary uses of information given when credit is sought, members of the banking community stated.

Some representatives of the financial community claimed manual methods were easier than computerized methods to trace personal information, but Gentile and other members of the committee disputed the witnesses' definition of personal.

These witnesses apparently felt that a personal data system collects information on arrests, mental health and political affiliations.

Any Data

The committee, however, is working on the basis that such a system collects *any* type of data, even financial transactions, for example, on members of the public, as opposed to employment files or payroll information.

Records in a "personal data system" as defined by the committee, then, would include credit bureau files, as well as data on anyone with a charge card or charge account at a store, anyone with a banking or checking account, etc.

'Not Just a Tool'

Gerald Davey, formerly with TRW Credit Data, agreed with Gentile that an "aggregate of bank statements" is a highly automated, highly personal data system, not just a tool for accounting.

This comment takes on special significance in light of testimony that banks do not protect their customers' files as carefully as many people believe, the committee noted.

Kenneth A. McLean, staff member of the Senate Banking, Housing and Urban Affairs Committee, said the banking industry does not like the position of making the judgment to release financial data, however, and favors legislation requiring a court order or subpoena before disclosing such data.

States 'Ready' to Match

BETHESDA, Md. – Some states are encouraging the collection of the Social Security Number to deal with the recipients of services – such as welfare or Medicaid – "just in case" matching of files becomes permissible.

In reporting this fact to the HEW computer advisory committee, Charles Rowan, executive director of the National Association for State Information Systems (Nasis), said the state of Iowa is performing "some of the most detailed matching."

Rowan listed matching of returned mail from tax forms and voting files to eliminate incorrect addresses; he also said the names of dead or blind people are removed from drivers' license files.

"Nasis members typically know of the matching problem" as it relates to security and privacy, Rowan said, adding these members see no current push for blanket approval of this matching.

Even so, the members "want to know what is public information and what is private," he observed. "Leadership can come only from the federal level," Rowan added.

"I hope this committee will recommend such a program," he also said.

'Separate Court, Police DP'

BETHESDA, Md. – Courts and police should maintain separate data centers if the traditional "aloofness" of the courts is to be maintained, according to Judge Harold H. Greene of the District of Columbia Superior Court.

While computers are now recognized as management tools, the "aloofness that is neccessary . . . is lost under joint operation," he told the HEW computer advisory committee.

With court control of a judicial system, the system can be guarded against invasions into legally and/or socially confidential information, he said.

"The judiciary should be the guardian of the right of privacy," Greene continued, "and public policy would seem to dictate separateness."

Prof. Arthur R. Miller of the Harvard Law School observed that one "cannot deal with any part of the judicial system in isolation."

Besides using technology in the administration of justice, a much larger issue is the "imbalance between the individual and the prosecutorial arm" of the government, he added.

Miller was disturbed by other portions of testimony which appeared to indicate the biggest problem in criminal justice applications is the recording of case dispositions.

This is not true, he said, claiming the use of records, even the valid use, should come under more serious examination.

Prof. Joseph Weizenbaum, on sabbatical from MIT to the Center for Advanced Studies in the Behavioral Sciences, also criticized inaccuracies in records as detrimental in employment analysis.

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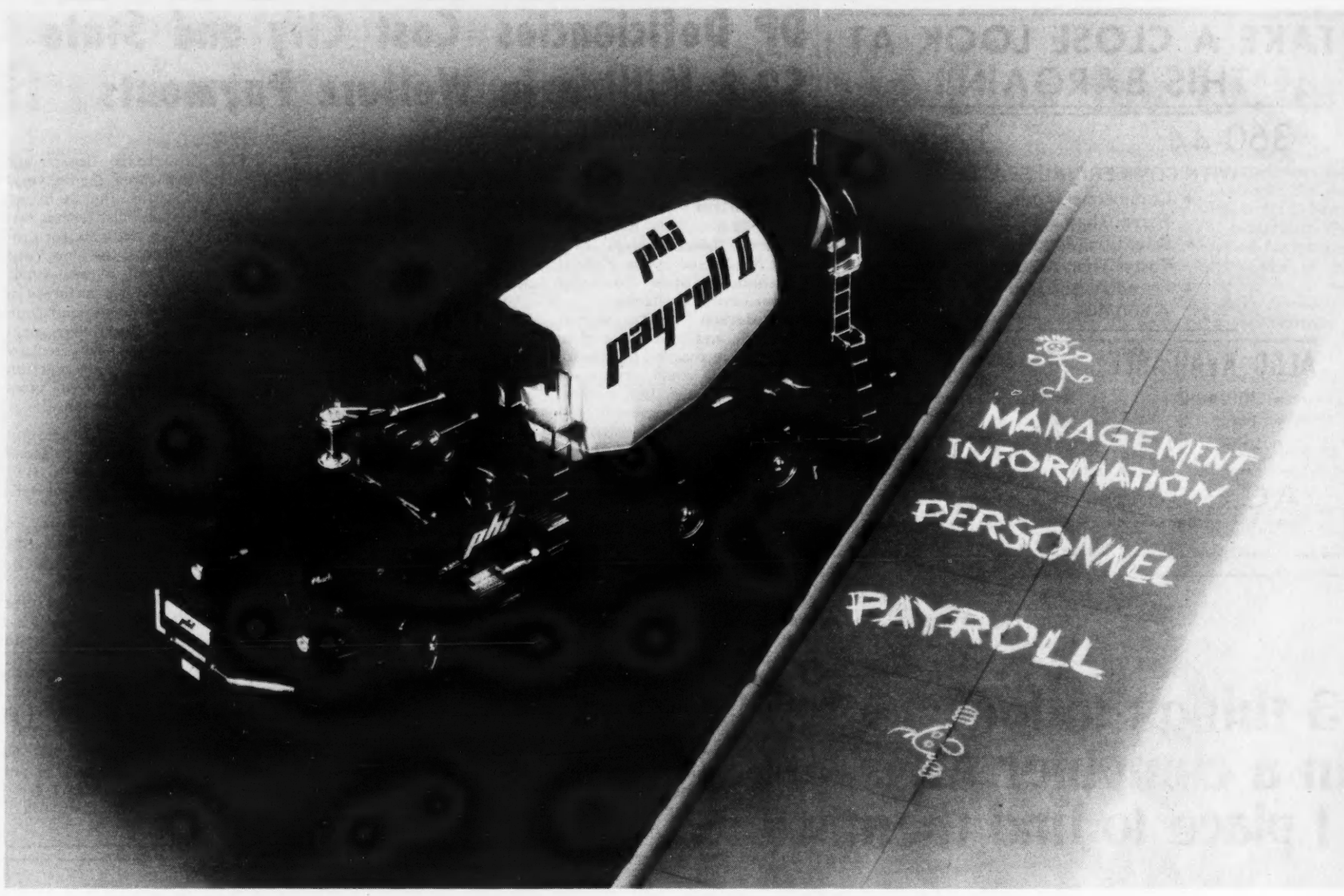

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By Molly Upton
Of the CW Staff

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The ineligible group included clients whose certification eligibility had expired.

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Later, HEW ruled that protective payments were eligible for 50% federal funding retroactive to April 1970. But no claim was made for federal funding for these accounts, and they were processed "as federal nonparticipating with the state and city funding the total cost rather than only half of it," the report stated. This resulted in the $2.8 million overpayment, the report charged.

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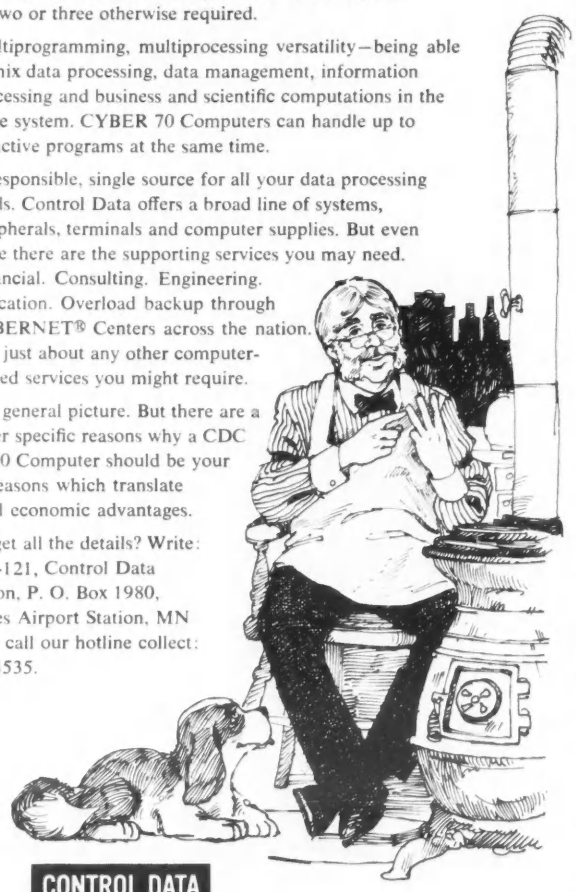

That's the general picture. But there are a lot of other specific reasons why a CDC CYBER 70 Computer should be your choice. Reasons which translate into sound economic advantages.

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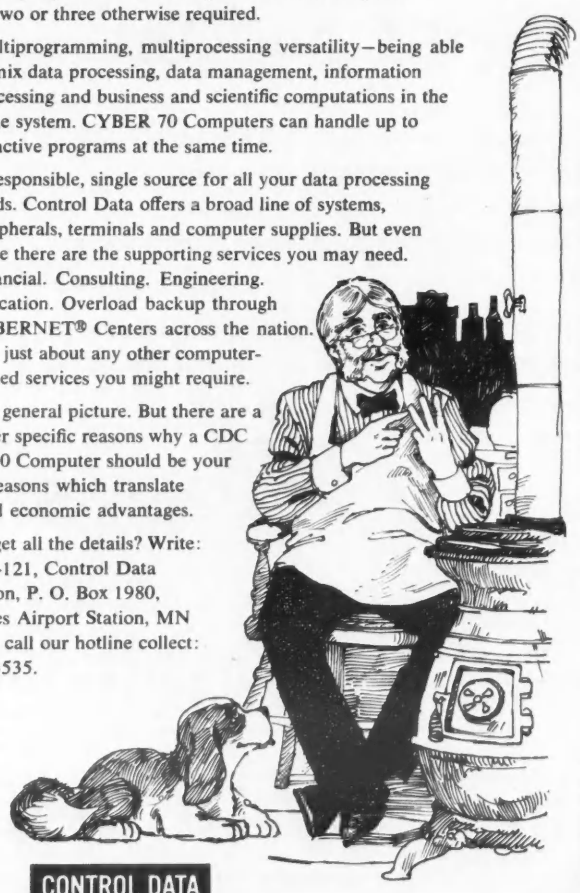

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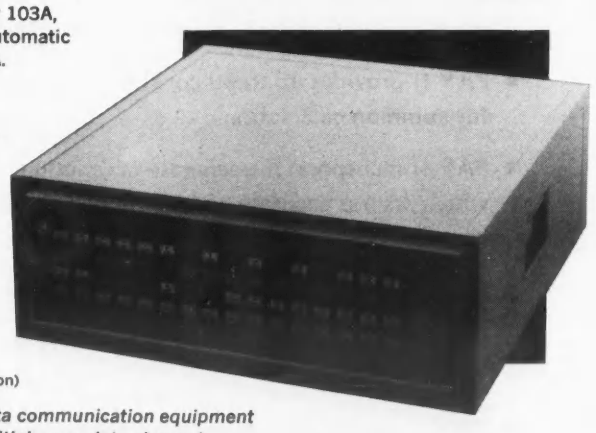

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The Computerized Campaign--Part 1

First the Lists, Then Interview – and Then the Letter

By E. Drake Lundell Jr.
Of the CW Staff

WASHINGTON, D.C. – Computers and not television may get much of the credit for electing the next president of the U.S. – whether a Democrat or Republican sits in the White House.

While television spots were used almost exclusively by President Nixon and Hubert Humphrey to get their message to the people in the 1968 election race, most campaigners this year have adopted sophisticated, computerized, selective mailing techniques to get their message to the electorate.

One of the major reasons for the switch to the computer-based letter method of campaigning is a recent election law which restricts the amount of money a candidate can spend on television advertisements but does not limit direct mail campaigns.

Another reason, according to the politicians, is that the computer-based techniques allow them to reach the "magic" undecided 15% of the voters who swing elections.

Generally, they said, around 85% of the voters have made up their minds on the candidates before the election campaign even gets under way.

No one knows the scope of the effort at present, but it does run into the tens of millions of dollars, when primary expenditures and all congressional contests are added to the race.

And no one really knows how well the computerized mailings work in convincing voters to adopt a particular candidate, but proponents of the technique indicate it allows them to closely identify their audience and tailor specific messages to that segment of the population.

It is more of a "rifle shot" approach as opposed to television, which the proponents dicate is a "shotgun" approach.

And even though the effectiveness of the systems is not fully known, critics have already blasted the use of the computerized voting techniques as opening the door to fraud and dishonesty on a selective basis.

Under the preferred method the names of registered voters in a precinct or congressional district are placed in the computer files of the party maintaining the system. The lists generated from these files go to volunteers who canvass particular neighborhoods to discover how the individual voters feel about the issues.

This data is then entered into the system and by computer matched to the voter's name. Independents are also covered in these surveys, in the hope that follow-up mailings can be used to help convince them.

After this data has been entered, letters aimed at specific audiences are then prepared.

Thus if an individual had told the surveyor he was a Roman Catholic who opposed liberalization of the abortion laws, he would then be a prime candidate for a computerized letter either over the candidate's signature or the signature of a prominent Catholic layman expressing the candidate's opposition to liberalized abortion laws and urging support – and money.

Similarly, if an individual had expressed great concern about the economy, he might shortly receive a letter either from the candidate or a prominent economist telling how the candidate would change the economy, again urging his support and money.

This is agreed to be the most effective use of the computerized systems – personal interviews followed by letters aimed specifically at the voters' major interests.

But computerized aids to campaigning are not limited to this use.

If it is impossible to canvass a neighborhood, either due to lack of volunteers or time, campaigners can often buy lists from commercial mailing list houses of, say, all the elderly or poor or Jews or Roman Catholics in a neighborhood.

The campaigner's computer would then be used to match these names (generally sold on magnetic tape) against the list of registered voters in the area.

This is the first of a series of articles on how computer systems are being used by candidates for national office in this year's election campaign.

Part I outlines how the technique works; Part II will discuss the extent and cost of the computerized operations; and Part III will delve into criticism of the technique and its overall effectiveness.

SS Support

Then a candidate would send a letter to all of the elderly in his area who were either of his party or independents telling them of the support he had given to social security in the past and promising further help if elected.

But while letters are the most prominent method used by the new computerized campaigners, the computerized lists are useful in other ways.

One of these is the personal telephone call, which is thought to be more effective than mail.

This technique is often used if a candidate finds a target population segment that can be wooed to his cause en masse by some attention to that segment's particular concerns.

For example, the results of a local poll may show that all Italians in a certain ward are largely undecided on how they will vote in the election but that their biggest worry is the economy.

The candidate – either presidential, congressional or local – could get his volunteers on the phone armed with the computer-generated lists of all Italians in the ward and their phone numbers.

The volunteers would emphasize the great concern of the candidate for the economy and his high regard for Italians.

If the candidate is the incumbent, the message might also mention how many cabinet officers and high officials of the administration are Italian. If he is the challenger, the message might promise to appoint more Italians than ever before.

Follow-Up Visits

These lists used to prepare letters are often used for follow-up visits by the candidate's volunteers – again if time and resources are available.

These visits would be used to determine whether the first round of mailings was enough to persuade the reluctant voter. If it was not, other mailings, again emphasizing the candidate's position on the major issues bothering that specific voter, might be sent.

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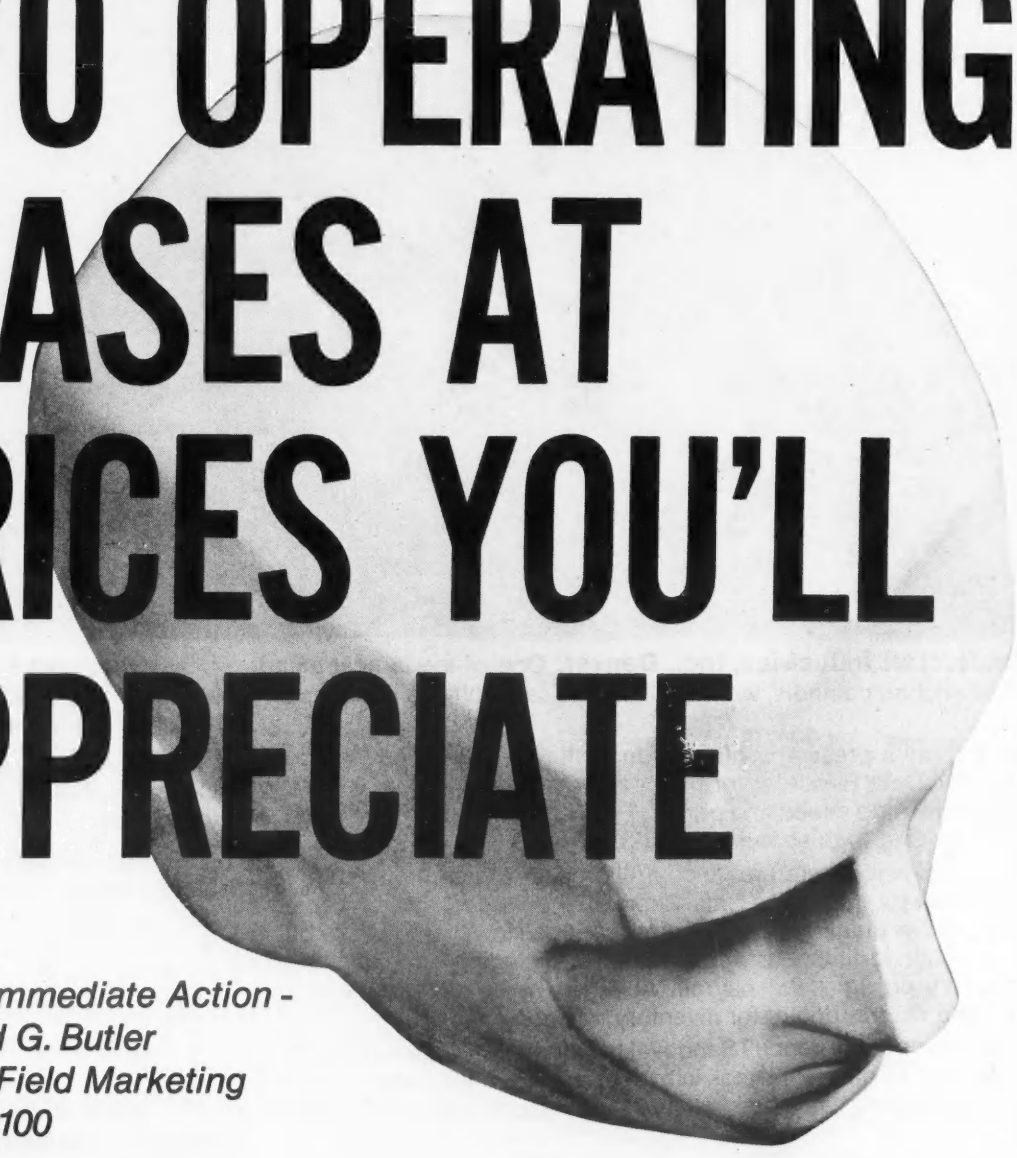

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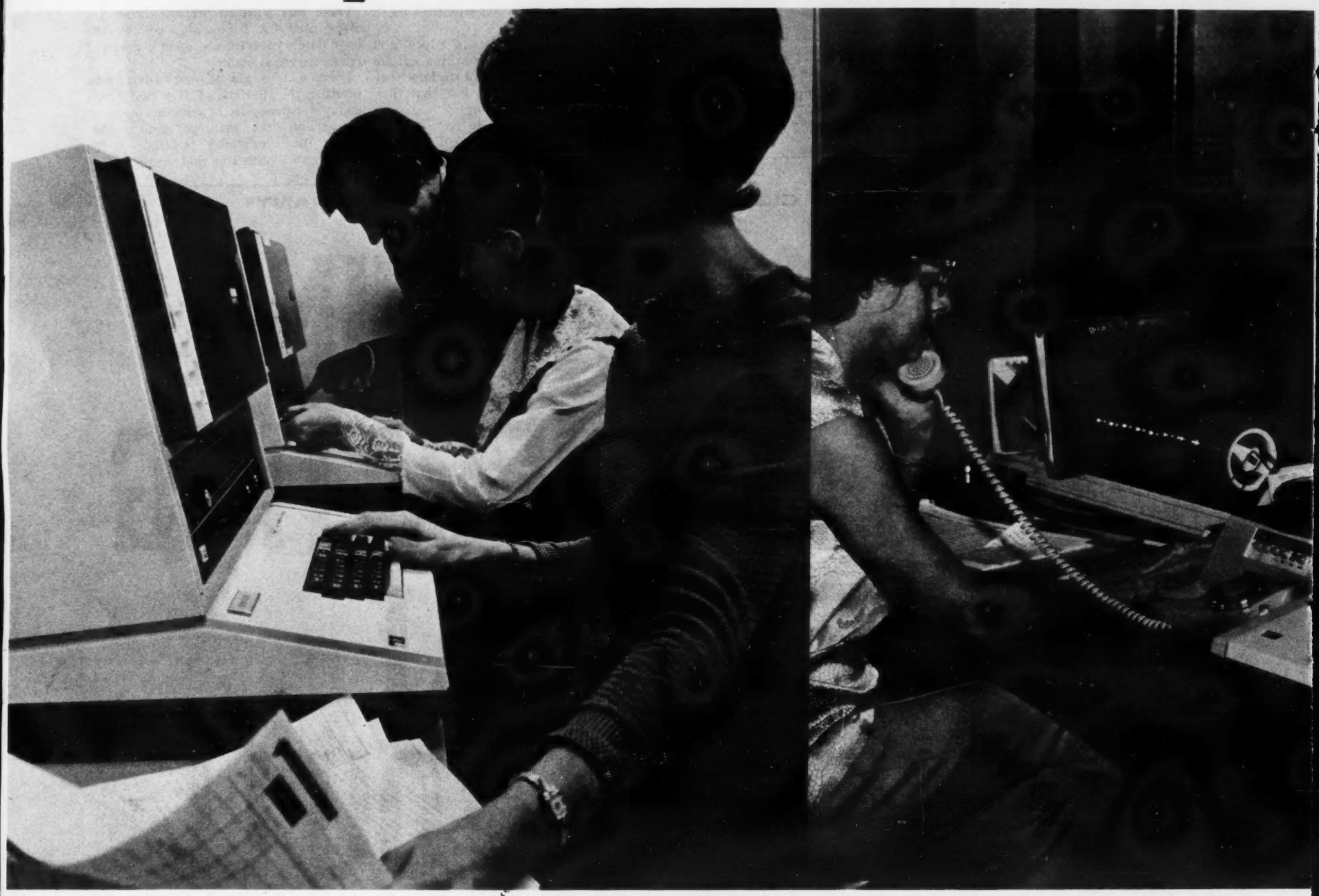
A Singer 4300 key-to-entry and transmission



Mastercraft Industries, Inc., Denver. One of the largest manufacturers of kitchen cabinets, with facilities and sales offices in Dallas and Phoenix.

Mastercraft's present configuration in the Denver office includes a 4311 Magnetic Data Recorder for data entry and transmission, a 4301 for data entry and a high speed line printer. Both branch plants have installed 4311 terminals and high speed line printers.

Ken Sandoval, Mastercraft's controller, says the company switched from an on-line system using a Data-Phone to the Singer* system because it provides precise quantity-item inventory control. However, it is also being used for accounting functions at all locations, including accounts receivable, accounts payable and payroll. And they're considering adding a magnetic data central pooler for inventory tracking.

Has it made a difference? Sandoval is delighted. "Tape input is much faster. . .We realize quite a savings in expensive CPU time alone . . . and the absence of problems has alone justified the change to the 4300 system."

Southern Electric Utility. 21 offices within a 700-mile radius using a central Data Center for billing, accounting, labor distribution, materials and supply inventory.

The offices and the Data Center are each equipped with a 4311 Data Communications Unit. Data is transmitted over the dial-up telephone network daily.

The average office transmits 156,000 characters—or 8400 record blocks—to the Center every month. The average office can transmit a whole day's transactions to the Data Center in 15 minutes or less: eight times faster than with the previous punched card system. The Data Center recorder is now receiving over 200,000 records per month, and has the capacity for over one million records during any given month.

A printout is produced and mailed to each office daily from the Center.

Input into the Center's IBM System 360 is 45 times faster than with the former card system, which used both a keypunch and card reading terminal at each office. Costly mainframe sorting and conversion has been eliminated.

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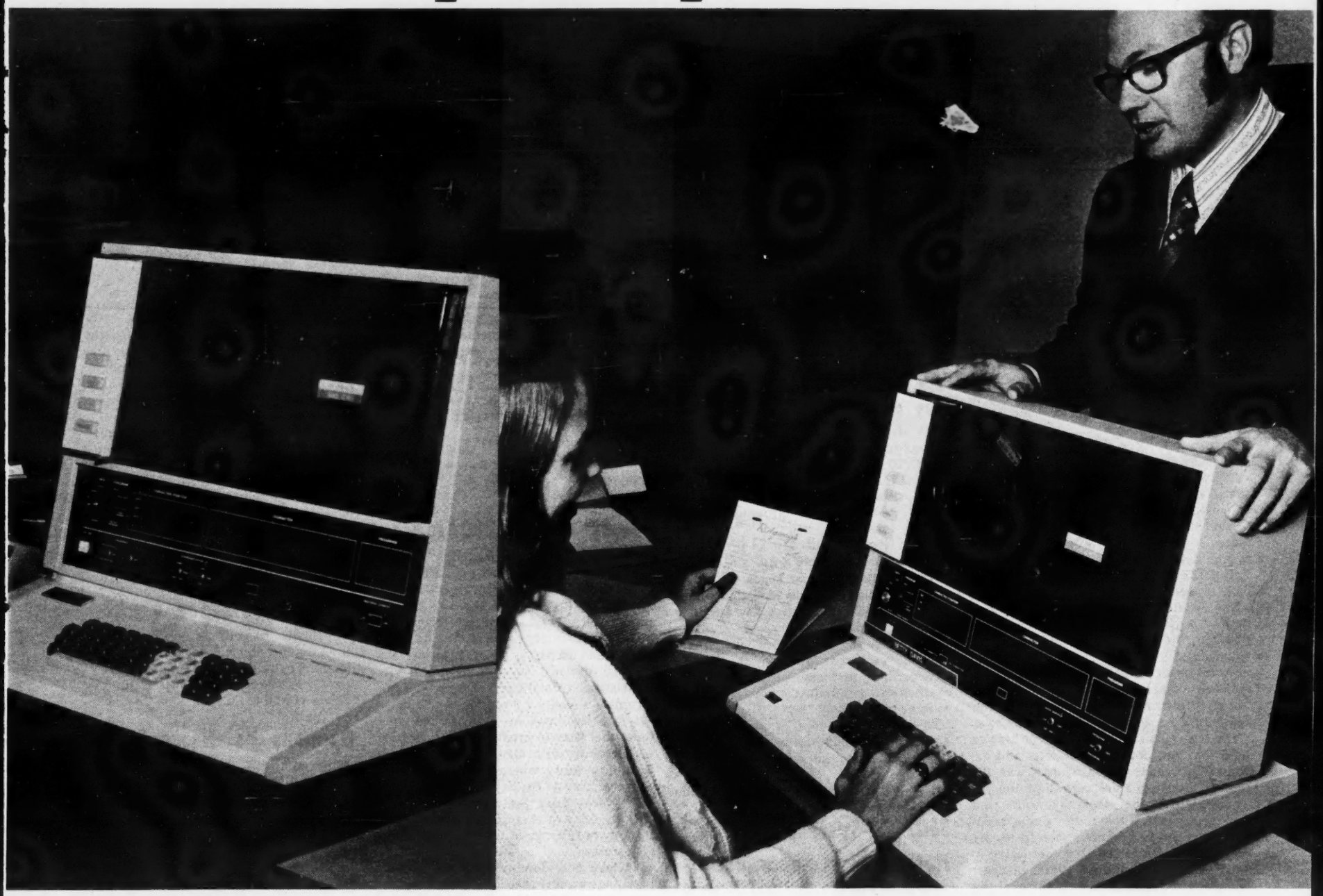

L. L. Ridgway Enterprises, Inc., Houston. Manufacturer of architectural supplies. 30 retail-wholesale outlets in 15 branches, from Denver to Atlanta.

At each branch, accounts receivable, cash receipts and adjustments are recorded on a 4311 Magnetic Data Recorder. It also creates invoice input and verification for computer invoice printout via a Univac 9300. A branch can transmit its weekly transactions by telephone in 45-90 minutes.

Management indicates that the new 4311 terminals were justified on cash flow alone.

4300 Series Magnetic Data Recording System equipment is designed and manufactured by PERTEC, one of the largest manufacturers of key-to-tape systems in the world. The product line is a result of high technology engineering and extensive product testing. Each unit is manufactured in PERTEC's ultra-modern electronic manufacturing facilities under stringent quality controls which assures high quality reliable performance.

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Editorial

A Boost for Certification

Certification of DP people, at least at the top levels, is a must if data processing is to qualify as a profession.

But the only major certification program in the U.S., the exams for the Certificate in Data Processing and for Registered Business Programmer, has been handicapped by the fact that it is sponsored by a single society, the Data Processing Management Association.

Now the DPMA and the Association for Computer Machinery are discussing the formation of a Computer Foundation to take over the certification program. Other societies would be asked to lend their support – thus hopefully creating community-wide support for the certification program.

We wholeheartedly support the general idea of the foundation and urge ACM and the other societies to support its creation.

Off and Running, Nonetheless

Letters to the Editor

Why Not Junk Cobol And Start New Language?

After following the Cobol epic tragedy in your paper, I would like to suggest another way out for business users: junk Cobol and get another language.

That sounds like a radical approach, but it seems to have some strong virtues.

With all of the Cobol standards, versions, subsets and supersets, etc. from everybody and his brother, can it really be said that a new language would be any more trouble to adopt? If its standard is as well defined as Algol 60 (a language so well defined it became a model), it might be as universal.

No one demanded Algol as a standard part of software when submitting a government bid, as with Cobol, but the language still caught on with users because of its virtues. Now it's available on a mini- or maxi-computer system – good full implementations that vary from the standard by a keyboard symbol or two.

The new language would also be able to question and correct directions and assumptions made when Cobol was designed. For example, regarding the assumption that the program is to be read by someone who only understands English – most programs are read by people who are versed to some degree in the field, rather than by a 1950's manager who doesn't understand a thing about "thinking machines." Why is "ADD" easier to read than "+"?; and why do you have to tell a compiler what computer it is on?

A lot of things presumed true in the 50's are not true in the 70's.

The new language would be able to more easily incorporate new standards for codes, tape blocks, etc. And everyone would start off equal with it, rather than engage in fighting to have their version made the official standard to gain some market advantage.

Software houses would have a good time writing conversion packages for Cobol to the new language. That might make up for the loss of the Cobol shorthand packages that are now being turned out. (The bulk is another bad thing with Cobol – can you imagine someone designing *and selling* a compact version of APL, Basic or Algol?)

It might also eliminate the optimizer packages for Cobol that are out, too. A language that is so bad an optimizer can improve it by 20% of run time makes one want to look at the programmers, the compilers and language all at once.

Any thoughts from other readers on this approach to the standards problem?

Joe Celko
Atlanta, Ga.

The 'Carping Critic' Has a Valid Point

I wanted to commend Alan Taylor for his column on "Our Technicians Are Blind to Organizations' Flaws" [CW, Sept. 20]. This was a thoughtful and well-documented page which will, of course, be ignored by the computer industry.

It is not easy to be cast in the role of the continually carping critic, since many shorten their attention spans to nearly zero when they have decided that one is "too negative" and "never has anything positive to say."

Nonetheless, without trenchant, truculent and persistent criticism, the shoddy programming and standardization which characterize the industry today will not soon be replaced.

The industry may not, of course, reform itself anyway; but one has an obligation to try even in the face of "hopeless" adversity.

William Lee Valentine
New Orleans

360/20, System/3 Really Not That Comparable

While I agree with David Ferguson's thesis that IBM's actions should be reported more objectively by the trade publications [CW, Sept. 20], I would like to point out that he is engaging in "fun with numbers" in regard to the prices of System/3 versus 360/20.

Specifically, his statement that IBM generously made available the S/3 "which would rent for about $2,000/mo on the average" to replace the 360/20 "which was renting from $4,000/mo on up" insults the intelligence of the reader.

In the 360/20, $4,000/mo will buy at least a 16K submodel 5 (fastest processor) with two full-capacity 2311s. (Our company just replaced such a system with an S/3. The total cost of that 360/20 was $3,500/mo using Memorex disk drives.) The $2,000 S/3 could be little more than an 8K or 12K system with two slow-speed 5444 disk drives.

These are hardly the comparable systems Ferguson would like us to believe they are.

Our experience with the two systems has been that we had to go with considerably higher-capacity hardware on the S/3 to achieve the same throughput we enjoyed from our fast submodel 5. The effect on cost is that we now pay 35% more to process the same volume of work – which includes extensive processing of indexed files.

Perhaps if Ferguson would like the press to be more objective he should set an example instead of playing the same game.

James L. Ham
Data Processing Manager
Genova, Inc.
Davison, Mich.

Tax System Has 240 Stations

In your Sept. 27 issue featuring "What's 'In' in Input?," Don Leavitt described the Reader's Digest shared-processor key-disk system. He said to call the 142 station system "large" was an understatement.

The direct entry system at the New York State Department of Taxation and Finance has just finished processing its fourth year of state personal income tax returns – roughly 7.5 million in 1972.

It was developed in 1968, at the same time that the Internal Revenue Service was working with General Electric on a feasibility study which led to its system, also described in the Sept. 27 issue.

The New York State system has 240 stations on two dedicated IBM 360/40s sharing three banks of Calcomp CD 22/14 disk storage.

We take considerable pride in this system since we feel that it was probably the first operating "shared-processor key-disk" system of its size in operation. We are likewise proud of its productivity, since we are now accomplishing with approximately 300 people what required 700 in the punched card era.

Robert L. Bullock
Director
State of New York
Department of Taxation and Finance
Albany, N.Y.

Totals Include West, East

In the article on "CDC Finally Penetrates Polish Time-Sharing Market" [CW, Sept. 6] the second paragraph reads: "And some sources indicate the Polish market could go as high as $50 million a year for U.S.-made equipment."

I believe it is a misleading statement and one which I did not have in my original draft.

Poland is installing about 50 new computers in 1972, and if Western market shares hold, it will be about 20% of the total.

Sources in Warsaw indicated Targowski stated Poland may be spending $50 million on foreign computers, but no one knows what time period was meant.

Most likely this figure pertains to the 1971-1975 Five-Year Plan expenditures for foreign computer purchases and includes purchases in the Soviet Union, East Germany, France, the UK, Czechoslovakia and the U.S.

Consequently, the Polish computer market for foreign equipment from both *East and West* is probably included in this total, which follows their policy to locally manufacture as much as possible of the required data processing equipment.

Bohdan O. Szuprowicz
President
21st Century Research
North Bergen, N.J.

Who Protests Too Much?

In response to your cartoon in the Sept. 20 issue, about Acpa's efforts – "Methinks you protest too much."

Richard F. Mittleman, CDP, RBP
William O'Neil & Co., Inc.
Los Angeles

Opinions Vs. News

Why complain about an industry on page 10 [CW, Sept. 20, Editorial, "The Shifty Shuffle"] and then go along with the practice complained of on page 27 ["This Check Won't Bounce"]?

Moral commitments should last longer than 17 pages.

J.R. Gilson
Manager
Mpls. Area Communications
Honeywell
Wellesley, Mass.

CW opinions are kept separate from news reports. Ed.

Verifier Verified

Your reporter may have trouble getting information on the IBM 159 verifier [CW, Sept. 27], since it doesn't exist.

Michael Gershman
Singer Co.
Ozone Park, N.Y.

We goofed. The 129 buffered keypunch doesn't have a separate verifier: three out of four models of the 129 include verification as well as punching. Ed.

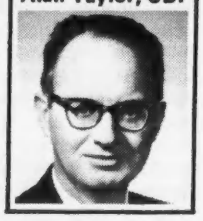
Computerworld welcomes comments from its readers. Preference will be given to letters of 150 words or less. Computerworld reserves the right to edit letters for purposes of clarity and brevity. Letters should be addressed to: Editor, Computerworld, 797 Washington St., Newton, Mass. 02160.

Decision-Making Sidetracked

User-Vital Questions Missing From Cobol Standard

In 1960, when prospective Cobol users raised the question of a need for a common collating sequence – or at least an agreement on whether numbers should come before letters or vice versa – the Conference on Data Systems Languages' Short Range Task Force (which had created the first Cobol specifications) said this subject would be dealt with later.

The Taylor Report
By
Alan Taylor, CDP



Now, as we review the proposed Ansi Cobol 73 Standard, we can see no decision has yet been made.

As the Ansi standards are reviewed only once every five years, Cobol users cannot expect to have an agreed standard way of sorting before 1978 – although the problem was recognized as urgent in 1960! Eighteen years seems a long time to wait for such a basic problem to be solved.

But long delays in coming to grips with problems appear to be quite usual in Cobol standardization methods. Ten years ago, for instance, users were already questioning the wasted storage involved in being unable to utilize the bit-structure of the data.

"Unless the users want to wait around for another five years, there is not much time left to find these missing vital questions. Dec. 31 is the deadline."

Under the Cobol concept of character symbols as basic items, it is impossible to use less than a full 6- or 7-bit character, even when only a single, on-and-off indicator is needed. Nor is it possible to test the individual bits in a character. This wasted much space in some programs, and, where the space simply could not be wasted, prevented the programs from being written in Cobol at all.

Again the answer users got was that the subject was "under study" by the developers, and they should wait until the developers were ready to come forward with some recommendation. But the users were not told how long they would have to wait.

This was perhaps a smart move – because this again is a subject not addressed in the current proposed 1973 Ansi Cobol Standard. Indications are that users will have to wait until at least 1978 before they can get this elementary form of computational efficiency in Cobol!

If the 1962 users who raised this question had realized the delays that would be involved in waiting for these answers, it might not have been so easy to convince them that passive waiting around for the developers was the correct approach.

Answers Really Available

This would be true particularly if the users had realized that good, usable and almost immediately implementable answers could be found simply by applying the generally agreed Codasyl purposes to the current situation – thus making these long, unending and no-deadline studies necessary only for clearing up some minor points at most. Answers are even now available – but they are not in the proposed Ansi Cobol Standard.

Collating Sequence

Take the question of the collating sequence, for instance. The two major collating sequences currently in use differ primarily in the positions of letters and numbers, although the space character is also a problem.

One sequence has the letters before the numbers, and the space having the highest value – while the other has the space with the lowest value, followed by the numbers and then the letters!

This is a serious problem so far as easing the changeover of programs is concerned. One situation recently involved keeping programmers on 24-hour alert for six months before all the cases were cleared up.

Yet, if the Codasyl purpose of minimizing the changeover problems was really implemented, one or the other of the two sequences could have been declared as the Cobol standard.

And, since there are many more Cobol programs written with one of the sequences than the other the adoption of the most popular – i.e. most-used sequence – would be in accordance with the Codasyl purposes. No real study is needed to determine or implement this.

Wait Not Needed

Users really should wait no longer for these changes. More importantly – indeed most importantly – is the fact that users no longer need to wait passively. Under the rules of the American National Standards Institute the ordinary user has until Dec. 31 of this year to make any suggestions he wants concerning Cobol.

He can ask for this standard collating sequence to be included – and the Business Equipment Manufacturers Association-sponsored committee that drafted the proposed Standard (Ansi X3J4) must reply. The volume of these requests may well force the adoption of standard items – such as the collating sequence and the bit-manipulation facility which have been getting the runaround for years in the present set-up. Some little power is, temporarily, with the users.

Other Missing Areas

Nor are these two areas – bit-manipulation and collating sequence – the only vital user questions that do not appear in the Proposed Cobol Standard. These represent the areas which are not dealt with at all – but other vital user interests involve areas which are dealt with inconspicuously or only by implication, rather than openly.

Two such areas involve the questions of just what is an Ansi Standard Cobol compiler – and just what are the limits of Cobol anyway.

One Language or More?

To take the last question first, Cobol is simply an acronym for Common Business-Oriented Language. It is therefore simply a single language. Yet, despite this, the trend appears toward including within the one language other languages which may, or may not be particularly business oriented at all!

This trend could first be seen when the 1968 standard included a Report Writer facility – with its own separate and different language – embedded and passed into Ansi standards by attaching it to the basic Cobol language. At the time the Report Writer concept had not been implemented, nor had the need for an Ansi Report Writer language been seriously discussed with the Report Writer user community. But it got into the standard area under the big Cobol label.

Now in 1972 we can clearly see the cost of this action. It was found that the 1968 Ansi Standard Report Writer had so many faults that it now has been abandoned. A new and very different Report Writer is embedded in Cobol this time – but still the question of whether different languages should be standardized under guise of being a development of one well-used language has never been specifically considered.

2 More Languages

Just how vital it is to users can, however, be seen in the new Proposed Ansi Cobol Standard. For now instead of having just one, small and genuinely business-oriented language inserted into Cobol we now have three of them!

The Communications Language, for instance, is new and almost untried. It is much, much bigger than the Report Writer, and it is only slightly business-oriented. (Communications is communications is communications whether the data being handled concerns business or non-business operations).

Mass Storage also is really a new and different language which again is much, much larger than the Report Writer. Again it is not well-known or tested.

Whether or not such a language should now be standardized is perhaps not open to serious question – but whether it should be standardized as a part of the Cobol language most certainly is. For this question has not been considered. The present Proposed Draft Cobol Standard just assumes it – without any real user approval of the concept.

What Isn't Cobol?

The second area – what a Cobol compiler is not, again is a vital user question. It is also involved in the proposed standard, but this is unknown to many users, and is not being mentioned in the publicity being put out by the Business Equipment Manufacturers Association. The involvement comes in the third qualification which is applied to the American National Standards Cobol Specifications in the Introduction.

This qualification permits anything to be labeled as Ansi Cobol, provided that it contains a minimum subset of Cobol – to be precise, the lowest level of the Nucleus, of Table-handling and of Sequential I/O. Otherwise the compiler can contain anything else the implementor desires – and can still be called an Ansi Standards Cobol Compiler!

The normal explanation of this blanket approval of any and all "so-called extensions" to Cobol is that any other action would automatically prevent the language from being developed, and that it would become stereotyped and fossilized.

However, the truth of this explanation has not been seriously considered. It may be true that totally forbidding the use of any extensions was the only possible control method available to replace the current blanket approval of all extensions. But life allows us to find many more possible answers than either total repression or total freedom.

OK If Offered

One such possible method of providing control would be to allow any extension to be added to Cobol – provided that the implementor formally proposes that it be made a part of the Cobol standard, thus allowing the Cobol community to achieve "commonality" if it wishes.

That would certainly be more useful than the current method, which effectively permits the Cobol implementors to build lock-in, proprietary extensions into their Ansi standard Cobol compilers! This inhibits the interchange of programs just as they used to do with their hardware designs.

The users are directly involved. But the questions – like these – that really affect the user are effectively missing from the little discussion that has taken place on the Standard Cobol 1973 – and these are therefore the vital user questions which are going to be absent unless the users start taking a real role and taking it quickly.

Dec. 31 Deadline

Unless the users want to wait around for another five years, there is not much time left to find these missing vital questions. Dec. 31 is the deadline. One solution which could help everybody would be to use the Society of Certified Data Processors' Cobol Coordinating Committee as a central depot for asking reader questions – for then readers could see not only the answers that are being given to their quesitons – but also the questions and answers that are asked by others. This way readers would be in position to judge just how well their questions are really being answered. That is what the 1960 Cobol users didn't have, unfortunately – and why we are now having to pay for their being "fobbed off" with inadequate answers.

Don't let it happen again. Use the questionnaire-survey alongside to make your interests known effectively. Then we won't find so many vital user questions being ignored next time around.

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What Should Cobol 73 Contain?

1. (A) Should there be a standard priority between letters and numbers? ☐ Yes ☐ No
   (B) If so, should it be the same as that used by most current Cobol programs? ☐ Yes ☐ No
2. (A) Should bit manipulation facilities be included in Cobol? ☐ Yes ☐ No
   (B) If so, should the most-used available Cobol version be adopted? ☐ Yes ☐ No
3. (A) Should Codasyl embed other languages (Report Writer, Communications, Mass Storage, etc.) in Cobol? ☐ Yes ☐ No
   (B) Who should be responsible for other languages?

   _____

4. (A) Should Ansi standard Cobol compilers be allowed to contain non-standard language? ☐ Yes ☐ No
   (B) If so, should the non-standard language be offered to the Cobol community for possible general adoption? ☐ Yes ☐ No
5. What questions about Cobol do you want answered?

_____

_____

_____

(continue on a separate page if necessary)

Name _____

Professional Position _____

Address _____

Contribution Enclosed $_____ Pledge $_____

Memberships _____

(When completed, please return to the SCDP Cobol Coordinating Committee, c/o The Taylor Reports, Computerworld, 797 Washington St., Newton, Mass. 02160.

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Why add core to a PDP-11 when you can expand with semiconductors at less cost? Nobody wants to pay more, wait longer, and worry about reliability for a core memory add-on these days. Now, PDP-11 users can move up to the MTI-311 add-on – and get semiconductor advantages at costs lower than DEC's. And get off-the-shelf delivery.

If you're looking for a better alternative, why not read our "Users Guide to Add-On Memory for PDP-11 Computers"? It's free. Write Roger Marino, Memory Technology, Inc., 83 Boston Post Road, Sudbury, Massachusetts 01776. Or, call (617) 443-9911.

MTI Memory Technology Incorporated

Tax Software Not Completed: City Gets Rebate

JACKSON, Mich. – City taxpayers almost got a break here when the city's new computer contractor could not convert the income tax part of the systems software by the contract date.

But that manufacturer (Univac) gave the city a rebate on the rent of the system which will allow it to do its income tax work at a local service bureau.

The problem arose when the city decided to go to an in-house system as opposed to continued use of an IBM 360/30 at a local service bureau operated by the National Bank of Jackson.

The winning bidder for the in-house system was a Univac 9200. At the time Univac said it would be able to convert the tax program written for the 360 system to its system by July 15, so the city cancelled its service bureau contract as of that date.

But it now appears that the estimate was off and the tax package will not be ready until Nov. 15 – four months late, according to Charles Farris, director of the city's division of administrative services.

Farris said that Univac "underestimated" the conversion problems and has now decided not to convert the old system but to write an entirely new one for the city.

Univac agreed to give the city one-month free rental, which amounts to around $2,500 since the city still has to pay the $600 monthly maintenance fee, because of the foul-up.

"I think our costs will be greater than $2,500," Farris said, since the city has had to go to another service bureau – Compu-Link of Lansing – to get the work done.

Farris indicated the city would press Univac for further rebates to cover the additional costs that the city will have to pay because of the delay.

Clear-Cutting Clears Up

SEATTLE – The forest-harvesting practice of clear-cutting is unattractive to many people and a major source of complaints. Now researchers at the University of Washington College of Forest Resources have devised two computer programs to help determine the visual effects of a clear-cut logging operation before it takes place.

One program draws a view of the ground form and landscape features while the other provides views of the vegetation in the area.

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Random Notes

Communications Analysis Available on UCS T/S Net

KANSAS CITY, Mo. – DP managers planning data communications systems can get consulting service on-line with the Private Line Analysis and Network Engineering Tools (Planet) capability through the United Computing Systems time-sharing network.

Developed by Berglund Associates, Cherry Hill, N.J., Planet includes simulators for different approaches to network structure, multipoint or concentrator network synthesizers and programs for auxiliary functions such as printing response time curves or editing the analysis data base.

Excess Data Preparation Offered by FDS Division

SPRINGFIELD, Ill. – Users with more input than they can handle can turn to the Data Entry Division of Franklin Data Services (FDS) for help. The new operation is prepared to handle punched card, punched paper tape and key-tape functions on a timely and cost-effective basis.

In addition to the keying of source document information, the division has optical scanning capabilities, including both typed and hand-printed data.

'In-Transit' Check Handling Eased by NCR Bank Software

DAYTON, Ohio – Operations managers in commercial banks can change the MICR sorting pattern for in-transit checks immediately and without the help of a programmer, by altering parameter card entries that control an In-Transit software package being distributed free by NCR.

The package operates on a 32K Century 200 with an 18-pocket MICR reader/sorter and dual-disk unit. In addition to controlling the sort pattern, the package also generates "cash letters" to accompany the shipments of the checks to their destination bank, NCR said.

Mark IV to Handle Data Bases

CANOGA PARK, Calif. – Mark IV users will be able to work directly with most data base management systems, through the separately priced Extended Segment Processing (ESP) special feature, expected to be available for about $5,000 from Informatics Inc. during the second quarter of 1973.

ESP will permit Mark IV users to create, update, process, retrieve and report from IBM's IMS and CICS, Cincom's Total, and Comress's Amigos. Mark IV already has the capability of reporting from IMS; ESP will be an extension of that, the company said from 21050 Vanowen St., 91303.

Keep It Simple

User/Vendor Outlines Test Data Rules

By Don Leavitt
Of the CW Staff

PITTSBURGH – Creating test data is often one of the most awkward parts of a programmer's chores, but there are approaches to the problem that can make the work easier, and at the same time more effective, PPG Industries believes.

Some thoughts about test data generation are included on the back of the fact sheet PPG sends out in response to inquiries about its file-building utility packages [CW, Sept. 13].

Not a software vendor in the usual sense, the company apparently feels a recount of its experience might prove useful even if the inquirer isn't interested in the package.

The first guideline PPG sets out is to create as little test data as possible to test the paths of the program. Massive amounts of data to test the same routines are unnecessary and "muddy the water," the flyer warned.

Test page overflow by repeating records, it suggested.

Admitting that all paths must be tested, PPG urged the programmer to concentrate on the critical portions of large, complicated programs. Get the analyst to identify the vital logic chains, and also the ones that will be next to impossible to get to, the fact sheet continued.

"Remember that one record may test several conditions, and send it through as many meaningful tests as possible." On the other hand, if a record is designed to be rejected immediately, don't bother filling in irrelevant fields.

Think through "very carefully" what each record is expected to do, and how output should appear if the program is working properly, PPG reminded the programmer. The programmer should write down his thoughts as he creates the data so when a test is run – perhaps weeks later – he won't have to think it all through again, PPG added.

Don't be afraid to enter a few words of comment in unused fields within the test data itself, so "they'll be right at your fingertips when you dump your tape or disk," the sheet suggested.

If value contents of fields are unimportant the user should make it easy to check output on a dump by having each field the same letter or number throughout. Field separations are easily found and the effects of moves are easily checked this way.

The results of computations can be more easily verified if the operation can be manually checked easily, or even done mentally – another benefit of keeping numeric fields simple and low in value, the sheet added.

PPG ends its advice on a general note: "it probably will not save any time to program test with an existing file. The time and effort spent determining what's on the file, plus how the program is reacting to it, is better spent writing one's own good test data."

Presumably this could be done with PPG's file-building software, although the cover letter notes the company isn't terribly concerned whether the user wants the package.

"We take the approach that software is bought and not sold," according to Horace C. Miles, supervisor of PPG's programming development staff at One Gateway Center, 15222.

$750 'Easyout' Report Writer Does Its Own Spacing, Editing

COLLEGE STATION, Texas – System 360 programmers who hate to spend a lot of time on report runs can avoid both the nit-picking of preparing printer layout sheets and the coding of complex specification sheets, by spending $750 for the Easyout report language processor developed by M. H. McKinney, a computer science instructor at Texas A & M University.

Easyout includes self-adjusting formatting logic, called Auto-Space, that eliminates the need for a programmer to specify the actual print positions of fields to be printed. The system also includes support for free-form, keyword-based specification statements.

Auto-space uses the width parameter of the control specification as a basis for spreading user-defined columns evenly across the page but, typical of the system, there is a default option (132 print positions) if the user omits the width entry.

Define Printing

In addition to an overall report control specification, Easyout also includes statements that define printing to be done at detail, total, heading and end-of-file times. It also supports statements which define forms control – spacing and skipping – to be performed in connection with any of the printing specifications.

The system can accept any form of sequential input file, and although presently limited to printer output, it could be modified to produce other forms of modified files, according to McKinney.

The Easyout user can define those records which he wishes to select from the input file, so he presently has the means of reporting or performing operations on a sample of a master file.

In addition to accumulating control totals for up to 250 input fields, the system allows the user to perform any of the basic arithmetic operations on any fields. The arithmetic operations supported by Easyout include the use of numeric constants, just as the printing operations may include the insertion of alphanumeric constants.

Easyout is a load-and-go processor, with a very fast "compile" time and batched report capabilities. It requires a minimum of 24K bytes of memory, and is presently implemented in an OS/360 environment.

Written in Assembler language, it is distributed by McKinney in object code form, from 1213 Neal Pickett, 77840.

Receivables on Leasco Network

WASHINGTON, D.C. – An open item accounts receivable system that can be interactively controlled by English commands is available as a service through the 22 offices of the Response I time-sharing network of Leasco Response Inc.

Response A/R is a full-blown system that generates customer statements, audit trails, aged trial balances and management reports. It is intended for the small company that cannot justify its own in-house CPU or for the larger user whose equipment is already saturated with work.

The system can handle up to 10,000 customers and cover 150,000 open items, up to a maximum of $100,000 per item. Individual customer balances can be as high as $10 million, the company added.

The system cover 10,000 salesmen and can be adapted to provide as many as 31 billing cycles, so the workload and resulting cash flow is spread over a month.

The conversational nature of the command language provides management with inquiry as well as report-writing capabilities. But the system includes password protection to block any unauthorized disclosure of customer information.

Most of the reports would be printed on stock paper, but the monthly statements can be generated on preprinted forms, as long as they conform to the print-spacing specifications of the system.

Output normally goes to the user's terminal but heavy printing jobs can be directed to magnetic tape units (for off-line printing) or to high-speed printers in some network offices.

Leasco charges $8/hr for connect time on the Response I service, with no charge for CPU time. Storage charges average 15 cent/account/mo.

Leasco Response Inc. is at 5401 Westbard Ave., 20016.

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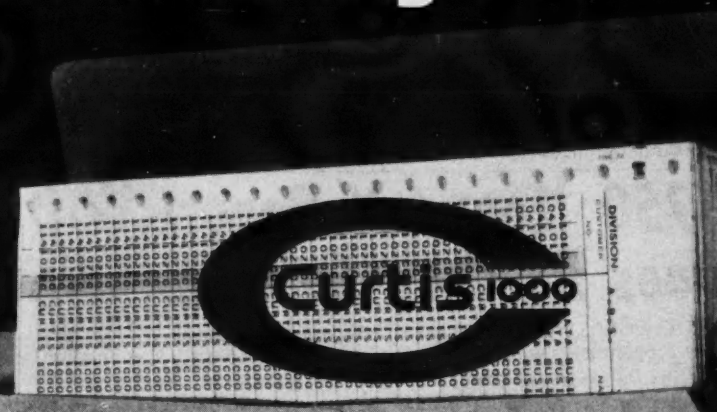

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'Task/Master' TP Monitor Supports 3270 Light Pen

NORWALK, Conn. – Support for all features of the IBM 3270 Display System is now available as part of the Terminal Independent facility of the Task/Master teleprocessing monitor, according to the developer, Turnkey Systems Inc. (TSI).

The IBM unit is "very likely the most complex terminal" currently available, TSI said, but the complexity of interfacing with its capabilities is effectively transparent to the Task/Master user. The 3270 has a CRT similar to other terminals but, in addition, it supports a light pen and a badge reader. The light pen can be used to selectively identify fields displayed on the CRT.

The CRT itself can be used in "read-modified" mode, in which only those fields which have been altered are displayed. By avoiding the display of entire records, users can better recognize the significance of current transactions, TSI noted.

Each of these features could be very difficult to handle, a company spokesman said, but under Task/Master all of the accessing and other device-dependent work is done so that the user can effectively process messages as if they came from an external storage device, rather than from a terminal.

Task/Master is said to provide teleprocessing support in the areas of task and core management, error recovery, simplified language interfaces, file and task security, message switching and queuing.

Through the Terminal Independent (TI) facility, users can mix or change terminals without any application modification.

Separate modules have been developed for each of the classes of terminal devices supported by Task/Master.

The system operates under either DOS or OS/360. Core requirements vary with the number of device types being supported, a spokesman noted.

Task/Master, including one TI module, leases for $500/mo, but can be purchased for $21,000 or $700/mo over a three-year period. Additional TI modules for other classes of terminals, are available for $25/mo.

TSI is at 111 E. Avenue, 06851.

Bits Available to Cobol

SOUTHFIELD, Mich. – Two Assembly language modules, now available as a $33 package from Computer Services Corp., allow Cobol programmers to inspect individual bits of bytes within control blocks, to turn bit-level program switches on or off and to pass coded data at the bit level.

Though many situations lend themselves to binary definition which could be expressed by bit settings, Cobol does not support data manipulation at that level.

The new modules avoid that limitation by expanding bits into full bytes for processing under Cobol, and by compressing strings of bytes into bit representations for tranmission and storage efficiency.

Each of the modules can work with as many as 256 bytes on the compressed side of its operation. Thus Switchex can expand the bits of 256 bytes into eight times that number of separate bytes, and Switchcp can compress 2,000+ bits into 256 bytes, the company said.

The modules are designed primarily to answer the needs of Cobol but can be used with PL/I or with Assembler programs as well, the company noted. They operate under either DOS or OS environments.

Computer Services Corp. is at 23225 Northwestern Hwy., 48075.

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(If you're not so lucky, a tape goof can lose important data forever. Then what's the *real* cost?)

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BASF/2000 A.D. is coated with a smaller-particle oxide dispersion that we developed in our own labs. The smaller particles can be applied more evenly, more compactly, more completely than ever before possible. Result: greater sensitivity and uniformity, in a thinner coating.

The thinner coating, in turn, means a more flexible and flatter-lying tape. Result: better head wrap, better capstan control, better head contact.

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COMMUNICATIONS

User Speaks Out

Carriers Must Provide Total Data Service

By Ronald A. Frank
Of the CW Staff

CHICAGO – "Today's data communications systems are much like our childhood Erector sets," according to Art LeMay, vice-president of Trans Union Systems Corp.

Speaking to communications specialists attending the first national communications week sponsored by the Communications Systems Management Association (CSMA), LeMay said each common carrier cannot continue to provide only a portion of a user's communications needs.

It is necessary for his company

CW Photos by Ronald A. Frank
User Art Lemay

to deal with six suppliers or carriers to get messages transmitted between Chicago and Toledo, he said.

"We will not advance beyond this crude Erector set engineering" until one vendor (a common carrier) assumes responsibility for the whole job, he added.

"The carriers must take charge of the test panels, line maintenance, and interface equipment," LeMay said. "Everything except the computer itself."

Citing current communications problems of his company,

CW at CSMA

LeMay said, "We lose approximately 5% of our potential business every month to such things as errors, lines out of service, modems malfunctioning, and multiplexer defects."

Trans Union, which provides consumer credit information to lending institutions in Chicago, St. Louis, and other Midwest cities, has to act as "certified expert mechanics [to keep] our system on-line," LeMay said.

Data users "spend too much administrative and in-house engineering time haggling with vendors over system outages," LeMay said.

The present hybrid technology interweaves analog and digital equipment and causes service and administrative headaches which must be eliminated if data communications is to remain a profitable business, he said.

Three areas most in need of improvement, Lemay said, are: users must get faster, more reliable service; the network coordination problem caused by multiple vendors must be solved; and alternate route systems must be established to protect users from prolonged service outages.

DDS Previewed

A preview of the Bell System's digital data system (DDS) was presented to conference attendees by Carl Stuehrk, director of service plans in AT&T's recently formed Computer Communications and Data Services Division.

DDS service will include three different operating strata, Stuehrk said. The first will be the local link connecting the user site to the central office. The second will be the link between the central office and the digital hub office. And the third will be the intercity digital network itself, he said.

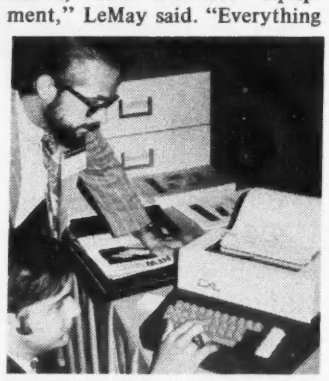
At the user site, one of two types of DDS interfaces will be connected. Digital signals transmitted on the DDS system will be synchronous with timing provided by the network, Stuehrk said. The interface will have to provide "timing recovery that will keep the business machine terminal synchronous with the transmission medium," he said.

About 150 users and vendor members of CSMA attended the national communications week. The CSMA communications man of the year award was presented to Tom Carter, whose legal challenge to existing tariffs led to the Carterfone decision.

Carter is currently president of his own communications firm and of the North American Telephone Association.

With both communications users and vendors as members, CSMA is closing "the communications gap" that exists between the two groups, according to CSMA president, William Rush.

AT&T's Stuehrk



CXL Communications Inc. displays its dot matrix printer; Steve Holish demonstrates unit while Bill Jones, data systems planner with the Girard Bank watches.

Is AT&T Beyond Control?

Regulation Called 'Sick Joke' at TCA

By a CW Staff Writer

SAN DIEGO, Calif. – Data users attending the tenth annual conference of the Tele-Communications Association (TCA) here, heard a scathing indictment of the regulatory process by William Bennett, state attorney and former California regulatory commissioner.

In a panel session dealing with today's regulatory environment, Bennett told users the "common carriers never had it so good and you never had it so bad."

"Regulation is a sick joke in America today and the regulatory bodies supposed to protect

CW Photos by Ronald A. Frank
Attorney Bennett

users are derelict in their duty. AT&T is beyond regulatory control and running wild," Bennett said.

Ignorance of the regulatory process on the part of the public has given the carriers virtually a free hand to operate as they wish, he charged.

Taking issue with Bennett's statements and defending the policies of the Bell System was Arthur Latno, vice-president for regulatory matters with Pacific Telephone & Telegraph. The regulatory environment is established by the responsible commissioners, and the Bell System favors the concept of regulation, Latno said.

Where previously regulation had been considered a substitute for competition, a way must

CW at TCA

now be found to combine the two concepts, Latno said.

Bell Competition

About one-third of Bell's service already has competition, so customers must weigh the relative advantages of suppliers available to them," Latno said.

On a more pragmatic note, John Watford, EDP manager of the Seattle First National Bank told users they must assume a vital role in the profit making potential of their companies. "If you are not contributing to that bottom line, it is doubtful that you will be attending this conference for many years to come," Watford, who was the conference keynote speaker, warned.

Telecommunications combined with competent management provides "a valuable corporate asset" that impacts directly on the profitability of a company," Watford said.

Communications managers should be dynamic and propose new ideas, he said. And these users should take a chance, when warranted, with lower priced equipment even if it does not have a "long proven list of customers," he added.

About 200 communications managers, primarily from the West Coast, attended the conference which also included a full schedule of seminars and an exhibition in which more than 70 equipment suppliers, and common carriers participated.

Testers, Modems, Terminals Exhibited for Users at Meeting

SAN DIEGO, Calif. – Communications test equipment, modems, and terminals were included in the equipment on display at the Tele-Communications Conference.

Paradyne showed its new model 810 Bisync Analyzer "which eliminates the finger-pointing that typically occurs when a teleprocessing system is down" and each vendor claims the trouble is not caused by his equipment.

The analyzer checks the operation of a modem, Bell DAA, and the phone line, and the device will spot improper message and response formats, improper control sequences, and improper software procedures for initiation and termination of transmissions. The user can see the control sequences transmitted over the line to see which part of

(Continued on Page 18)

Karen Syence of Paradyne shows the 910 Bisync Analyzer to Sam Gudmunson, manager of digital data systems for Gulf Electronic Systems.

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4 Think about the peripherals you need. We can supply any standard Nova 1200 peripheral, completely interfaced, and ready to run.

5 Get the software you need. A Nova 1200 from Rental Electronics comes with all the software you'd get if you bought the same machine from Data General. That includes standard things like assembler, editor, loader, debuggers, ALGOL, time-share BASIC, and FORTRAN.

6 Arrange for field service. REI offers full On-Call Service contracts . . . you pay a monthly charge and nothing more. Most important, the computer you rent from REI is serviced by the same Data General staff that has made a reputation as one of the best in the computer business.

7 Arrange the right terms. With a 3-year lease, an 8K Nova 1200 with Teletype (purchase price approximately $9,800) costs less than $250 a month; with a 1-year lease, it's less than $335 a month. The same system, on a month-to-month basis, with maintenance, costs about $784 a month. Or, under a rental-purchase agreement, it's $980 a month, with 80% applied to purchase after 6 months.

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9 Or write. Send your name and address to "How to Rent a Minicomputer" Rental Electronics, Inc., 16600 Oakmont Avenue, Gaithersburg, Maryland 20760, and we'll send you our brochure with all the details. We're serious about minicomputers.

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Network Awareness Cited

Data Users Must Look at Total Needs

By a CW Staff Writer

CHICAGO – The computer communications user can no longer be regarded as simply a hardware customer. Now he defines the performance characteristics he needs and then selects equipment to meet his specifications.

This awareness of network requirements was voiced by both users and vendors attending the Communications Week sponsored by the Communications Systems Management Association (CSMA) recently.

In an opening address to the 120 communications specialists attending the conference, Dr. Dale Hall, director for computer systems development at Indiana University, described the network now operating at the various campus locations of his school.

Typifying the advanced systems represented at the conference, Hall described his multi-campus network which includes IBM 3270 CRTs operating at 1,200 bit/sec and Bell 208 data sets which transmit at 4,800 bit/sec.

Using both a CDC 6600 for scientific work and an IBM 370 CPU for administrative processing, the university's net includes a polled system, remote job entry capability, and a conversational capability that may be converted into an in-house time-sharing system, Hall said.

The plans of Western Union to provide additional data services were described by James Fischer, WU's assistant vice-president, who said the carrier is scheduling its first Electronic Data Switch for New York in January, 1974. A network of 11 EDS sites will provide users with WU's digital equivalent of Bell's Data-Phone Service.

Also described was WU's Multi-Point Data Service which will allow users to connect directly to WU lines with their own non-carrier modems.

The data service will include optional supervisory stations that will be able to change terminal priorities as network traffic patterns change, Fischer said.

Among the services to be offered with the multi-point data service will be a mini-controlled network switch that will give users the capability to expand their limited CPU data ports without additional hardware.

The new WU services are expected to be in operation by the mid-seventies at rates comparable to AT&T 3000 series rates, a WU spokesman said.

Describing the Bell System's current interconnect policies, Larry N. Wilson, marketing supervisor of AT&T's interconnection group told the conference attendees that competition and the use of non-carrier equipment are "unnatural companions."

Many of the specific answers to interconnection problems are being solved on a case-by-case basis as they occur, Wilson said. If the Bell System is to effectively compete, then some of its services will have to be priced below actual costs, he said.

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So, in the interest of effective communications, we're turning the rest of this ad over to you. You tell us the specific problem; we'll give you some specific answers. Just between us, of course.

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central computer at _____ (location),

and the following terminals feeding into it:

Number	Manufacturer	Model	Type	Data rate	Modems used

These terminals are located at _____

As data lines, we use ☐ dedicated ☐ dial-up ☐ voice grade ☐ conditioned lines.

We ☐ do ☐ do not use any multiplexers at this time.

Anticipated system growth is as follows _____

My telling you all this doesn't obligate me in any way; I just want to make sure I'm not missing out on any savings.

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____

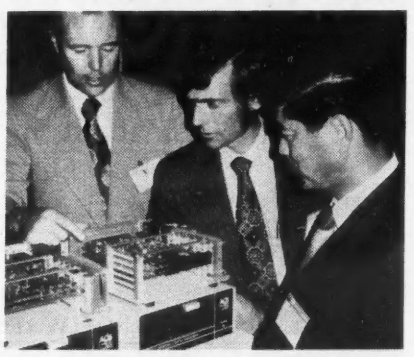
Testers, Modems Shown to Users

(Continued from Page 16)

the system is "saying the wrong thing," the company said. The tester costs $2,750 from Paradyne, Largo, Fla.

The telecommunications division of Data Products showed users how its Detect diagnostic system works. The fault isolation system is designed to be used by inexperienced terminal operators at remote sites, a spokesman said.

American Data Systems demonstrated its 4,800 bit/sec MOS modem. The entire



Fred Mooney of American Data System (left) shows the MOS 4,800 bit/sec modem to James Scott and Mitsuo Kawahara (right), from Delphi Communications Corp.

modem is built on a single printed circuit card and the device features automatic equalization with visual diagnostics.

The Information Systems Division of General Telephone showed its Tempo II front end for the first time, according to a spokesman. The front end replaces an IBM 270X unit and is priced at about $7,500, depending on configuration.

Maxson Electronics exhibited its 2011 data terminal that can be configured as part of a data entry or remote bach system depending on model.

The 2011 includes a communications interface that handles transmission rates up to 9,600 bit/sec. Tape, disk, and card equipment is also available with the system. Maxson is at Great River, Long Island, N.Y.

Bits & Pieces

Execuport Terminal Lease Prices Cut by Over 22%

PARAMUS, N.J. – Lease prices for Execuport Series 300 portable terminals, from Computer Transceiver Systems Inc., have been reduced by more than 22%.

Lightweight models 302, 310 and 311 are now $155/mo. including maintenance. Standard models 302, 310 and 311 are now $135/mo including maintenance.

Under the new lease plan, users can apply 50% of lease payments toward purchase of any unit to one half of the total sale price. Lease and purchase is through the firm at E. 66 Midland Ave., 07650.

Interdata Offers 2 for 1 Deal

OCEANPORT, N.J. – Universities and colleges – with computer science departments – are being offered a "two for the price of one" minicomputer deal by Interdata.

For $6,800, universities can purchase an Interdata Model 70 and receive free a Control Store board that converts the general-purpose 70 into an Interdata Model 50 data communications processor. If bought as separate, complete units, the model 70 and model 50 would each cost $6,800.

This offer is good until Dec. 31 from 2 Crescent Place, 07757.

Check Signing Made Easy

CHICAGO – A signature imprinter for signing computer printout checks or any other document produced on continuous forms is available from Martin Yale Business Machines.

The Model 927 Checksigner/Imprinter accommodates standard forms and is adjustable for signature position or imprint message. The machine will imprint approximately 75 signatures per mintue on standard 3-1/2 in. continuous form checks and will accommodate form widths of 5-1/2 in. to 15 in. and depths of 3-1/2 in. and 7 in., stock weights to 125 lb.

The unit retails for about $349 from 500 N. Spaulding Ave., 60624.

Phototypesetter Costs $9,500

LOWELL, Mass. – Graphic Ssytems Inc. is offering a new phototypesetter designed as an output device for any existing computer system.

Capabilities include a size range from 5 to 18 point in nine sizes, four type styles and reverse leading to permit full page or column makeup.

The Little C/A/T is part of the System 1; a modular group of devices ranging from optical character recognition units, video display terminals, a computer actuated phototypesetter and a programmed minicomputer.

The unit costs $9,500 from 217 Jackson St., 01852.

Three Functional Models

Data System Allows Mixed Media Input

NORRISTOWN, Pa. – Scan-Data has introduced what it calls the first mixed-media data entry system designed to handle a universal range of computer data input.

The Scan-Data 2250 functionally consists of three functional modules – the OCR system, the Reject Handling Subsystem and Key-to-Disk Terminals used as data entry stations.

The Optical Character Recognition (OCR) system consists of a paper transport and scanner, recognition unit, system control unit, on-line display, ASR 33 teletypewriter, magnetic tape controller and magnetic tape unit.

Memory for the OCR system control unit is standard at 8K words, and is expandable to 32K in 4K increments. Up to four magnetic tape units can be attached to each tape controller and several controllers are offered for different formats and densities.

The recognition unit can read alphanumeric fonts OCR-A or OCR-B, 1403 Selectric and Pica-72 and most standard numeric fonts. Recognition is also possible for handprint numerals and a few specific letters.

The Reject Handling Subsystem allows keyboard entry of rejected characters without reference to the source document and without interrupting scanning throughput. Up to four Scan-Plex terminals with alpha/graphic display and keyboard can be attached to a single 2250 data entry system.

The data entry stations – Scan-Plex Key Entry Subsystem – provide the 2250 with key-to-disk capability. Up to 16 terminals can be attached to a single 2250 system.

Prices Outlined

The price of a basic 2250 Data Entry System with OCR-A or OCR-B alphanumeric recognition, plus on-line display, and with one magnetic tape unit for output is $210,000, $4,725/mo lease, plus maintenance.

A Scan-Plex II Terminal costs $2,500, $50/mo lease, plus maintenance; the controller for up to eight Scan-Plex II Terminals costs $2,500, $50/mo lease, plus maintenance.

Depending on the application, additional core memory and disk storage are also required on Scan-Plex systems.

"Equipment costs are reduced by the 2250 System since the productivity of major system elements – computer, disk, tapes – is greatly increased by their time-shared use, at only an incremental cost for keyboard devices," a firm spokesman noted.

In some cases," the spokesman concluded, "this incremental equipment cost would be less than 50% of the cost of comparable keypunch, key-to-tape or key-to-disk equipment."

Delivery of the first 2250 systems is scheduled for the fourth quarter of 1972. Delivery of the first Scan-Plex II Terminal is scheduled for the second quarter of 1973 from 800 E. Main St., 19401.

What Are Tape Errors Costing User? Formula Provides Answers

By Michael Weinstein
Of the CW Staff

BURLINGTON, Mass. – Because they waste only a fraction of a second, tape write-skip errors are often ignored as a major source of computer lost time and efficiency. Yet a recent survey by Computer-Link Corp. found that a computer installation using 60 tapes could experience about one-half hour of lost time a day through write-skip errors.

tape libraries indicated an average of 19 write-skip errors per tape: 293 reels tested at 1,600 bit/in. had an average of 27.6 error/tape; 215 reels tested at 800 bit/in. had an average of 7.8 error/tape.

Transport Tape Speed in./sec	Programmed Retries			
37.5	.6628	1.3256	3.3140	6.628
75	.1433	.2866	.7165	1.433
100	.1183	.2366	.5915	1.183
112.5	.1093	.2186	.5465	1.093
200	.0807	.1614	.4035	.807

Table 1. Lost Time in Seconds

Each time a computer tape drive encounters a spot on a tape that prohibits the recording of a bit of information, it stops, backs up and attempts to rewrite the information. If it fails after a defined number of retries, the drive moves the tape ahead – over the unreadable portion – to a new area of the tape.

Table, Formula

A table and formula – supplied by Computer-Link – can be used to determine the magnitude of lost time for a user installation through write-skip errors.

The table shows the time lost per skip (10 retries is standard for I/O software). The user would select the tape speed of his drives and circle the loss per write-skip.

A sample survey of 508 tapes from 20

Using the above table and the following formula the user can determine what tape errors are costing him.

Fill in the values for (1) to (8).

(1) Number of tapes in library.
(2) Number of tapes used daily.
(3) Number of days per week of operation.
(4) Average number of write-skip errors.
(5) Computer cost per hour.
(6) Time lost per write-skip (table 1).
(7) Recording density (1,600 bit/in. or 800 bit/in.)
(8) Tape format (9-track or 7-track).

Using the values just entered the user can determine what tape errors are costing him:

A. Cost per tape error =
$$\frac{\text{cost/hr (5) x write-skip-time (6)}}{3{,}600}$$

B. Total errors per day =
error/tape (4) x reels-used/day (60

C. Write-skip cost per day =
error/day (B) x cost/error (A)

D. Total yearly cost =
day/week-operation (3)
x 52 x loss/day (C),

Mini System Promises Superior Operation To IBM 3/10, NCR 50

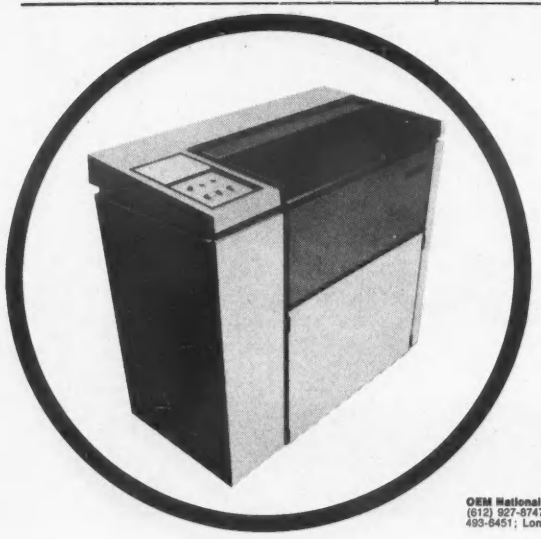
SAN ANTONIO, Texas – A new business-oriented system, Focus IV, from R&T Associates is said to offer capabiliites superior to the IBM System 3/10 and the NCR 50 at less than half price.

The 8K word turnkey system will sell for $39,500 including all software (multiprogramming capability), a disk operating system and application packages.

The hardware is configured using a GRI Model 99 CPU, a Control Data dual-disk storage system with a capacity of 10.6M characters, a Centronics printer capable of printing 165 char./sec, and a CRT and keyboard from Control Data. The system is expandable to 32K words and can handle up to 40 I/O devices, the firm stated.

Application packages are designed specifically for small businesses and include programs for accounts receivable and payable, payroll and inventory control. Minor changes to application packages, caused by specific needs of individual businesses, will be made.

The first deliveries will be made in December from the firm at 2103 Mannix Drive, 78212.



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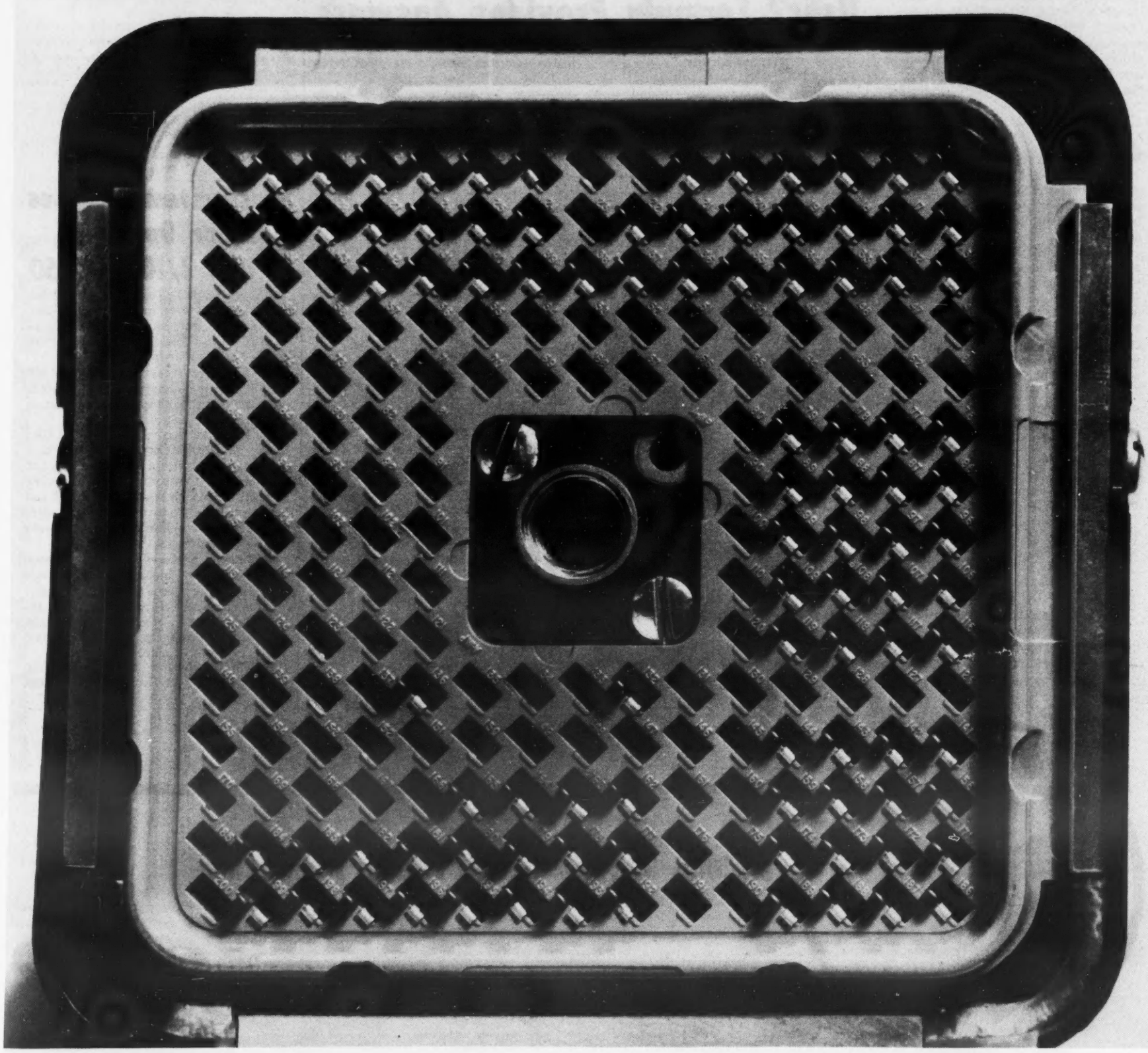

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Remember, there is no monopoly on talent. The TELEX Engineering Staff has set out to prove they have the technical depth and skill necessary to anticipate your requirements in peripheral hardware. And as a result, they have dramatically influenced the direction in which the "state of the art" is moving.

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Honeywell Working to Solve Large System Problems

By Don Leavitt
Of the CW Staff

BOSTON – Honeywell has already received more than 200 firm orders for Series 2000 systems, company Vice-President Ed Lund told the recent user group meeting. And it's probably just as well many of those orders are for the 2040 CPU because the bigger models are still having problems, a user panel replied the next day.

Serious Problems

Certified Grocers of California went through more than a month of real serious problems when it installed its first 2070 last spring, according to the cooperative's manager of systems and programming, Mac MacNamara. A second system has been delivered and is ready to be installed, but MacNamara declined to give a date when he expected it to be up and running.

Henry Kee, systems group manager of Blyth Eastman Dillon, told the meeting his 2060 was "installed" April 24th, but he is still waiting for it to be up and function as advertised. Normally the console "looks like a Christmas tree," he said, with "every light you can conceive of" on from time to time.

Only William Clements, DP director of Tufts University, seemed completely happy with his new CPU, a 2040, and with the support Honeywell had given him so he was "on the air" with the new equipment and new programs four months after placing his order, as scheduled.

Up in 24 Hours

MacNamara said the engineers brought his 2070 system up in 24 hours, but when he tried to run jobs that had been executed properly on his H3200, he got "strange results." Within a week or two, he said, Honeywell field engineers had identified and corrected the problem which involved the system's divide logic.

Then the cooperative began to realize it was having problems with the Cobol compiler. These too were solved, after a week or so, but by then Certified's operations staff was beginning to lose faith in the system. Since then, however, the system has worked well and the staff's faith has been restored, MacNamara said, and they now see the 2070 as more reliable than the 3200.

A Honeywell spokesman tried to put MacNamara's problems in perspective by noting that Certified's was one of the first field-installed 2070s, but he had to admit the divide problem never should have gotten past Honeywell and out to the field.

He told Kee that at least the check-bit problem Blyth Eastman Dillon had been experiencing on its 2060 had now been diagnosed by Honeywell engineers and that a hardware fix should be ready shortly.

No Problems

Tufts got its 2040 operational with no problems, Clements said, but noted the university hasn't been exercising its hardware nearly as hard as the other users were pushing their equipment. Moving from a 32K H200 (Model 0) to a 98K H2040, the school has added payroll and accounts payable applications, but it still operating heavily in a "407-type" mode.

The workload will certainly grow, he said, and one of the reasons Tufts moved to the H2000 line was to gain a real operating system environment.

On the old H200, some of the programs were being run under Model 1-MSR, others under OS/200 and others under no operating system at all, he explained.

Mini Controls Security

PASADENA, Calif. – A minicomputer-controlled identification and access system is now available for small EDP installations with a maximum of four doors and 500 employees.

While the system is not limited to computer sites, they are the most common users of a similar but larger access control systems, according to officials of Rusco Electronic Systems here.

The R-30 Access Control System features a console, up to four ID card readers, and an optional print station to inform management of every individual entry attempt.

Employees are issued credit-card-type plastic identification cards with a secret invisible code within the card, officials said. The cards are priced from $1 down, depending on quantity.

The code is scrambled, so that entry can only be accomplished if a person has access to the logic of the card reader, Rusco said. The code could also be printed or embossed on the ID card.

Larger System

The larger R-40 system can control up to 50 entrances and 5,000 personnel with its mini and associated equipment, Rusco said. The codes on the cards contain 28 bits each, but with additional options such as time frames and security areas, the mini is expandable to 200K bits, Rusco added.

The R-40 can be programmed for six time zones, and the R-30 for three time zones; these time frames can be bypassed for high volume access or egress, if the user desires, with the more restrictive control during the off hours, the company said.

While the larger unit is already installed in the U.S. and Europe, the R-30 was only recently announced at a security conference.

A typical configuration for the R-40 with 10 doors and less than 1,000 people would cost $5,984 for the console plus $610 for each ID reader, and about $1,400 for the optional printout facility, Rusco said.

The R-30 with four doors and 500 cards would cost $2,500 for the console, $500 for the readers and about $800 for optional printers, according to Rusco, at P.O. Box 2848D, 91105.

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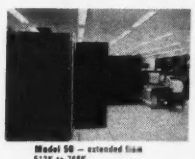
Model 50 – extended from 512K to 768K.
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Model 30 – extended from 32K to 64K.
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Model 22 – extended from 32K to 64K.
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Model 40 – extended from 64K to 128K.
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Graco, Minneapolis, Minnesota

Model 50 – extended from 256K to 512K.
State Comp. Insurance Fund
San Francisco, California

Model 30 – extended from 64K to 96K.
Toronto School Board
Toronto, Ontario, Canada
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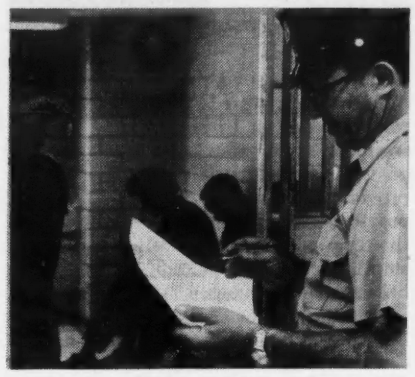
Data Bank to Monitor Prisoner Status, Should Speed Processing

PHILADELPHIA – There could be less hatred and despair in the City of Brotherly Love, thanks to a new computer application in the judicial system.

A data bank of prisoners is now maintained by the Department of Prisons, and users can be kept up to date on prisoner status by inquiring through terminals available to courts, police, the district attorney and public defender, corrections officials, probation officers and others.



Correction officer quickly locates and assembles prisoners for court appearances using a list prepared by a computer-based prisoner information system.

While all these agencies have access to prisoner data, only the Department of Prisons can enter data on the IBM 360/40 at the Philadelphia Detention Center.

Advantages of the data bank, city officials said, include quick location of prisoners for relatives, friends, bail bondsmen, public defenders, lawyers and others who formerly might have spent hours on the phone trying to locate someone in detention.

A special bail program group will also pinpoint persons who need financial assistance to make bail, and otherwise might be overlooked for long periods.

The system is the first phase of a $1.5 million project called Combined Justice Information Network Over Terminals.

Demand for Rock Tickets Causes Machine to 'Strike'

SAN FRANCISCO – The demand for tickets to the Rolling Stones' California tour was too much for the Ticketron system here, which apparently choked when it received too many orders at once.

When the concert tickets were placed on sale, in addition to bookings for Elvis Presley and several other concerts across the country, some 300 Ticketron outlets were besieged by ticket requests from anxious youths, many of whom had been standing in line for hours.

"It was just a mass slowdown of the computer," a spokesman explained.

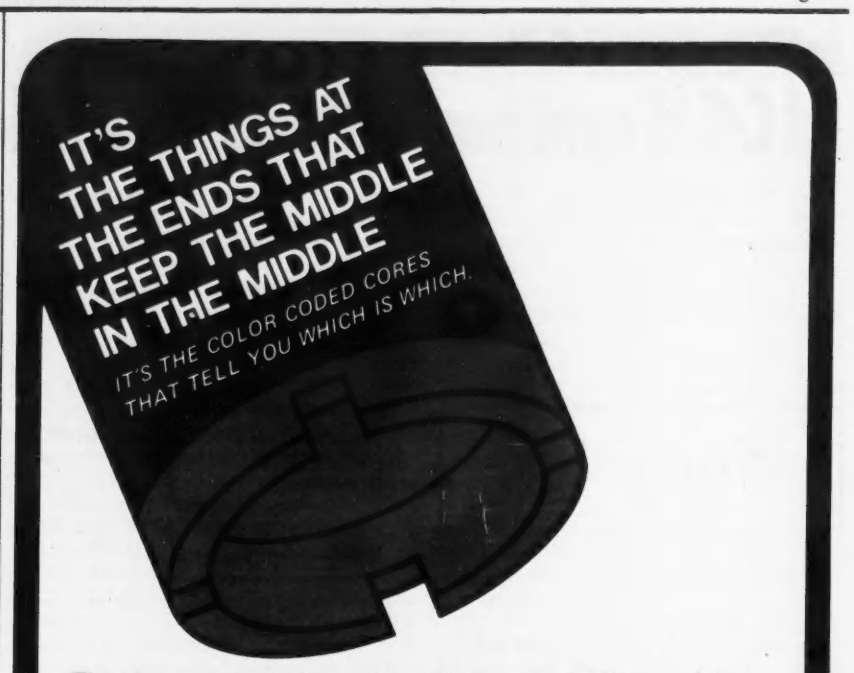
"We expected some delays," he added. But response time was slowed from about one second to as long as five minutes, some outlets complained.

In the first hour of sales, only 16 $5 tickets were sold, according to one agent.

Hundreds of youths, after waiting in lines for hours, were turned away by agents because the machine went on "strike."

To complicate matters, Ticketron put a limit of nine tickets per terminal inquiry. The promoter put a limit of four tickets per person. The outlets could have ordered nine Stones tickets, and then distributed four to a buyer, but this idea wasn't clear to the outlets, he said, so the outlets only ordered four tickets at a time.

The computer, a CDC 1700, polls all the terminals by their poll card number, so each outlet is handled in sequence.



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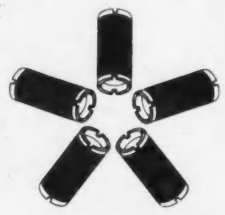

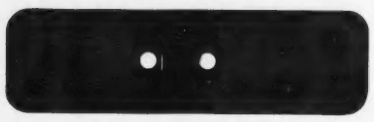

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Exhibit Space Sellout Seen

FJCC Seminars Near Completion, Tech Program Bigger

By Edward J. Bride
Of the CW Staff

MONTVALE, N.J. – Applications-oriented seminars to be held in conjunction with the Fall Joint Computer Conference are in the final planning stages, conference officials have reported.

The closest to completion apparently is the program for users in the banking community, according to officials of the American Federation of Information Processing Societies (Afips), sponsor of the three-day meeting, Dec. 5-7.

Societies

The adjunct or user seminars will be held on opening day only, and will become a regular part of the National Computer Conference (NCC) and Exposition, next year's successor to the joint conferences.

Space Sellout

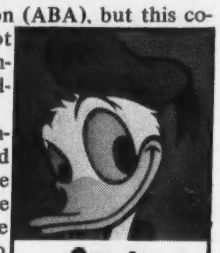
Meanwhile, Afips is predicting a sellout of exhibit space in the Anaheim (Calif.) Convention Center, with 330 of the 410 available booths already reserved.

The exhibit program has already surpassed the 1972 spring conference, and the technical program of 59 sessions – plus the four adjunct seminars – is also a sharp increase.

The day-long seminars will consist of four sessions each, according to Donald A. Meier, technical program chairman.

Richard G. Mills, a member of the group management staff at First National City Bank, will chair the seminar on Banking and the Electronic Payments Mechanism.

Afips officials said they anticipated continued cooperation from vertical trade associations such as the American Bankers' Association (ABA), but this cooperation does not extend to "cosponsorship" of the adjunct seminars.



The trade associations have expressed some interest in the seminars, and some of the groups have provided or intend to provide assistance in the form of membership lists, in order to help recruit attendance, Afips said.

Negotiations for the NCC next June are just beginning between Afips and the vertical groups, an official added.

The banking seminar, Mills said, will be addressed to operators and users of advanced banking and related systems, and to the "developers of computer systems involved in the changing electronic payments mechanism."

More specifically, the morning portion of the banking seminar will be devoted to a review and projection of progress in banking, payments systems, "electronic money" and related subjects, Afips reported.

Mills said speakers would "review the aspirations for the future of banking and payment systems that existed in the middle '50s and early '60s.

"Participants will then describe the actual progress of developments in the field, analyze the underlying reasons for the difference between forecast and actual accomplishments and seek to identify a basis for a new set of projections."

Panal Talks Included At DPMA Meetings

By a CW Staff Writer

PARK RIDGE, Ill. – After a summer reorganization which resulted in diminished headquarters power and more voice for regional Data Processing Management Association members, two eastern regions are planning comprehensive fall programs involving members at every planning stage.

While these annual fall meetings are required under DPMA regulations, the Empire division would have been exempt because the international meeting was held in New York; but both this division and Region 14 (New England) are finalizing their fall meetings.

The New England meeting will be in Bridgeport, Conn., Oct. 12-13, and the Empire Division meeting will be in New York Nov. 16-17.

The Connecticut meeting is at the Holiday Inn, and opening activities will include an IBM presentation on virtual memory, plus a banquet address by Dr. H.R.J. Grosch of the National Bureau of Standards (Grosch will also participate in a panel discussion in the November conference.)

In the Empire Division affair, the topics will include minicomputers for business, input for small systems, an analysis on the System/3 by a user, plus several sessions devoted to auditing, scheduling and communications.

The New York meeting will be at the Statler Hilton Hotel, and both conferences are planning equipment exhibits.

Calendar

Nov. 1, St. Louis, Mo. – Second National Conference on the Use of On-Line Computers in Psychology sponsored by the National Science Foundation and St. Louis University. Contact: Dr. Donald Tepas, Department of Psychology, St. Louis University, St. Louis, Mo. 63103.

Nov. 9-10, Williamsburg, Va. – Second National Conference of the Society for Computer Medicine. Contact: Society for Computer Medicine, Box M-488, Landing, N.J. 07850.

Nov. 13-15, Orlando, Fla. – 20th Annual Public Utility Information Systems Conference sponsored by the American Gas Association, Edison Electric Institute. Contact: Louis Kjorstad, American Gas Association, 1515 Wilson Blvd., Arlington, Va. 22209.

Nov. 15-16, New York – Data Processing Supplies Association Credit Card Workshop. Contact: C.A. Greathouse, Executive Director, Data Processing Supplies Association, P.O. Box 1333, Stamford, Conn. 06904.

Nov. 17-18, Provo, Utah – Computer Monitoring Workshop. Contact: Brigham Young University, Special Courses and Conferences, 242 HRCB, Provo, Utah 84601.

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Can All Interests Be Served Adequately?

Conferences' Growth Divides Industry, Society Views

By Edward J. Bride
Of the CW Staff

MONTVALE, N.J. – "I am pessimistic about the future of the joint computer conferences in any form," said Dr. Anthony Ralston, president of the Association for Computing Machinery (ACM), in a recent letter.

Ralston's feelings highlight a controversy between the two sides which plan the national conferences: industry and the technical societies.

Ralston's letter was written in response to a five-page letter from Robert Forest, chairman of the Industry Advisory Panel (IAP), a committee formed to reverse the computer industry's diminishing support of the conferences.

Forest said the conferences must serve a broader community than the technical societies which, he claimed, are not composed of typical users, the people to whom industry can sell its computer wares.

The IAP is composed of representatives of the exhibiting family of the conferences, sponsored by the American Federation of Information Processing Societies (Afips).

Officials of the federation, headquartered here, called the Ralston-Forest exchange a personal matter, and emphasized that Forest's views, while they may represent a consensus of the IAP, are not necessarily those of Afips.

But in the Ralston letter, there is a comment that could bring more widespread implications to the federation. ACM, the largest of the societies, could withdraw its support of the conferences, if they turn into "trade shows," Ralston said.

This is not so much a threat as an indication that the changes in the conferences might have more value to the industry – and even to the end users – than to the societies.

Forest seemed to support this suggestion when he said the potential beneficiaries of the changes, and the people who will implement them, are typically members of the Data Processing Management Association or of "vertical" computer-using groups, rather than technical groups like ACM.

Forest and Ralston both fell one step short of suggesting or threatening a schism between Afips and its constituent societies.

What Forest and Ralston agree on is

Analysis

that the conferences may be growing in such a manner that all interests cannot be served adequately.

Ralston feels this growth is too fast and ignores the societies, while Forest believes this broadening is necessary.

Afips, on the other hand, asserted there was no intention to diminish the technical content of the conferneces; but Forest was critical of Ralston's refusal to view the meetings "as seen by the exhibitors."

Forest said, for example, the exhibitors are not interested in "reaching the members of the ACM, the [IEEE] Computer Society or any of the other pipsqueak societies that comprise Afips."

Who Should Run Show?

Ralston replied that joint conferences – as of 1973 they will be called National Computer Conferences – may be fine, but perhaps Afips should not sponsor them. Afips should be more concerned with computer technology, and not with selling booth spaces, he indicated.

Behind the Forest-letter, apparently, was a move by the societies which limited the funds to be expended for next year's National Computer Conference and Exposition (NCC).

The ACM president claimed there was insufficient time to plan the conference properly, on the scale planned. Forest then charged Ralston with being "irrational and irresponsible."

Specifically, the socieites prevented Afips from hiring a "general manager" for the 1973 NCC, to be held next June in New York City: according to Afips, this restriction would not prevent the federation from hiring new permanent staff for its headquarters.

Either way, the move, and Forest's reaction, go far in stressing the division between the two sides on the future of the conferences – and on who should help bring about that future.

In the exchange of letters, Forest contended that sessions for small or unsophisticated users were needed, and could be organized in a shorter time than ACM was willing to acknowledge. Ralston said "it does not follow from this that the full-blown organization of a National Computer Conference is possible in the time available."

Ralston did not predict any drastic changes as a direct result of the letters, acknowledging only that they highlight serious differences between the industry and society views.

ACM N.Y. Chapter Welcomes Ombudsman

NEW YORK – The New York City chapter has become the 24th chapter to appoint an ombudsman, under the two-year-old program started by the Association for Computing Machinery (ACM).

An ACM official suggested that computer problems, at least with credit card companies, were on the decrease. But adoption of the ombudsman idea here and in smaller cities – Hartford, Conn., and Albuquerque, N.M. – indicates someone feels there is a need to protect the public, sources noted.

A spot check with ombudsman indicated no degradation of service or support from ACM headquarters here, despite the current ACM budget crunch.

Admissions Faster, Officials Admit

SALT LAKE CITY, Utah – An on-line admissions system at the University of Utah here has enabled the school to more than double the number of applications processed, with no increase in staff.

The system, Admis (Admissions Data Management and Inquiry System), allows quick processing of admissions information as it is received, explained admissions director Norman L. Gibbons.

"Since data does not usually arrive all at once, application information can be stored in a memo file for instant retrieval when transcripts, test scores and other materials arrive."

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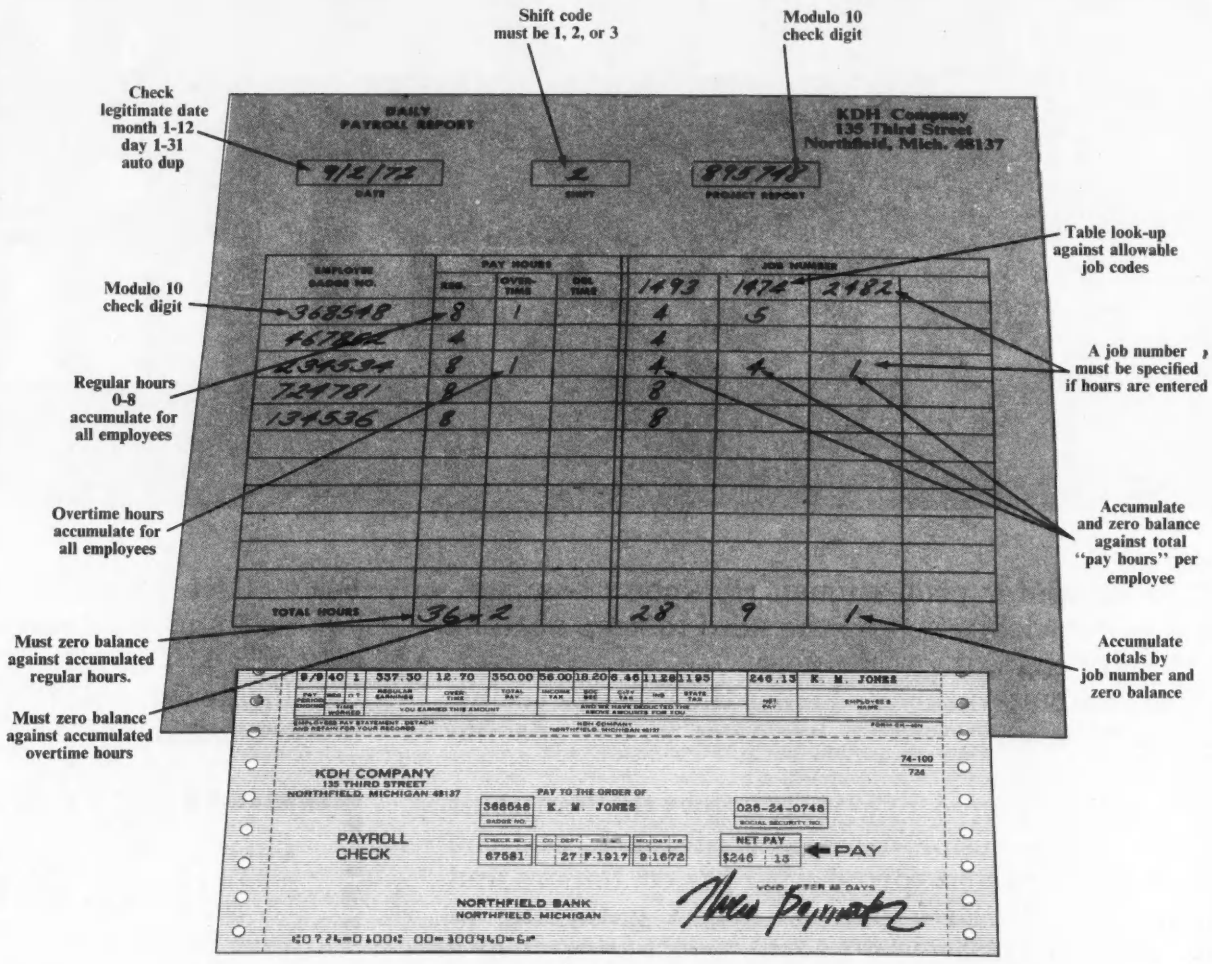

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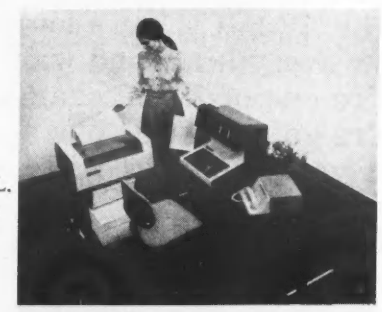

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Officials of the federation, headquartered here, called the Ralston-Forest exchange a personal matter, and emphasized that Forest's views, while they may represent a consensus of the IAP, are not necessarily those of Afips.

But in the Ralston letter, there is a comment that could bring more widespread implications to the federation. ACM, the largest of the societies, could withdraw its support of the conferences, if they turn into "trade shows," Ralston said.

This is not so much a threat as an indication that the changes in the conferences might have more value to the industry – and even to the end users – than to the societies.

Forest seemed to support this suggestion when he said the potential beneficiaries of the changes, and the people who will implement them, are typically members of the Data Processing Management Association or of "vertical" computer-using groups, rather than technical groups like ACM.

Forest and Ralston both fell one step short of suggesting or threatening a schism between Afips and its constituent societies.

What Forest and Ralston agree on is

Analysis

that the conferences may be growing in such a manner that all interests cannot be served adequately.

Ralston feels this growth is too fast and ignores the societies, while Forest believes this broadening is necessary.

Afips, on the other hand, asserted there was no intention to diminish the technical content of the conferneces; but Forest was critical of Ralston's refusal to view the meetings "as seen by the exhibitors."

Forest said, for example, the exhibitors are not interested in "reaching the members of the ACM, the [IEEE] Computer Society or any of the other pipsqueak societies that comprise Afips."

Who Should Run Show?

Ralston replied that joint conferences – as of 1973 they will be called National Computer Conferences – may be fine, but perhaps Afips should not sponsor them. Afips should be more concerned with computer technology, and not with selling booth spaces, he indicated.

Behind the Forest-letter, apparently, was a move by the societies which limited the funds to be expended for next year's National Computer Conference and Exposition (NCC).

The ACM president claimed there was insufficient time to plan the conference properly, on the scale planned. Forest then charged Ralston with being "irrational and irresponsible."

Specifically, the socieites prevented Afips from hiring a "general manager" for the 1973 NCC, to be held next June in New York City: according to Afips, this restriction would not prevent the federation from hiring new permanent staff for its headquarters.

Either way, the move, and Forest's reaction, go far in stressing the division between the two sides on the future of the conferences – and on who should help bring about that future.

In the exchange of letters, Forest contended that sessions for small or unsophisticated users were needed, and could be organized in a shorter time than ACM was willing to acknowledge. Ralston said "it does not follow from this that the full-blown organization of a National Computer Conference is possible in the time available."

Ralston did not predict any drastic changes as a direct result of the letters, acknowledging only that they highlight serious differences between the industry and society views.

ACM N.Y. Chapter Welcomes Ombudsman

NEW YORK – The New York City chapter has become the 24th chapter to appoint an ombudsman, under the two-year-old program started by the Association for Computing Machinery (ACM).

An ACM official suggested that computer problems, at least with credit card companies, were on the decrease. But adoption of the ombudsman idea here and in smaller cities – Hartford, Conn., and Albuquerque, N.M. – indicates someone feels there is a need to protect the public, sources noted.

A spot check with ombudsman indicated no degradation of service or support from ACM headquarters here, despite the current ACM budget crunch.

Admissions Faster, Officials Admit

SALT LAKE CITY, Utah – An on-line admissions system at the University of Utah here has enabled the school to more than double the number of applications processed, with no increase in staff.

The system, Admis (Admissions Data Management and Inquiry System), allows quick processing of admissions information as it is received, explained admissions director Norman L. Gibbons.

"Since data does not usually arrive all at once, application information can be stored in a memo file for instant retrieval when transcripts, test scores and other materials arrive."

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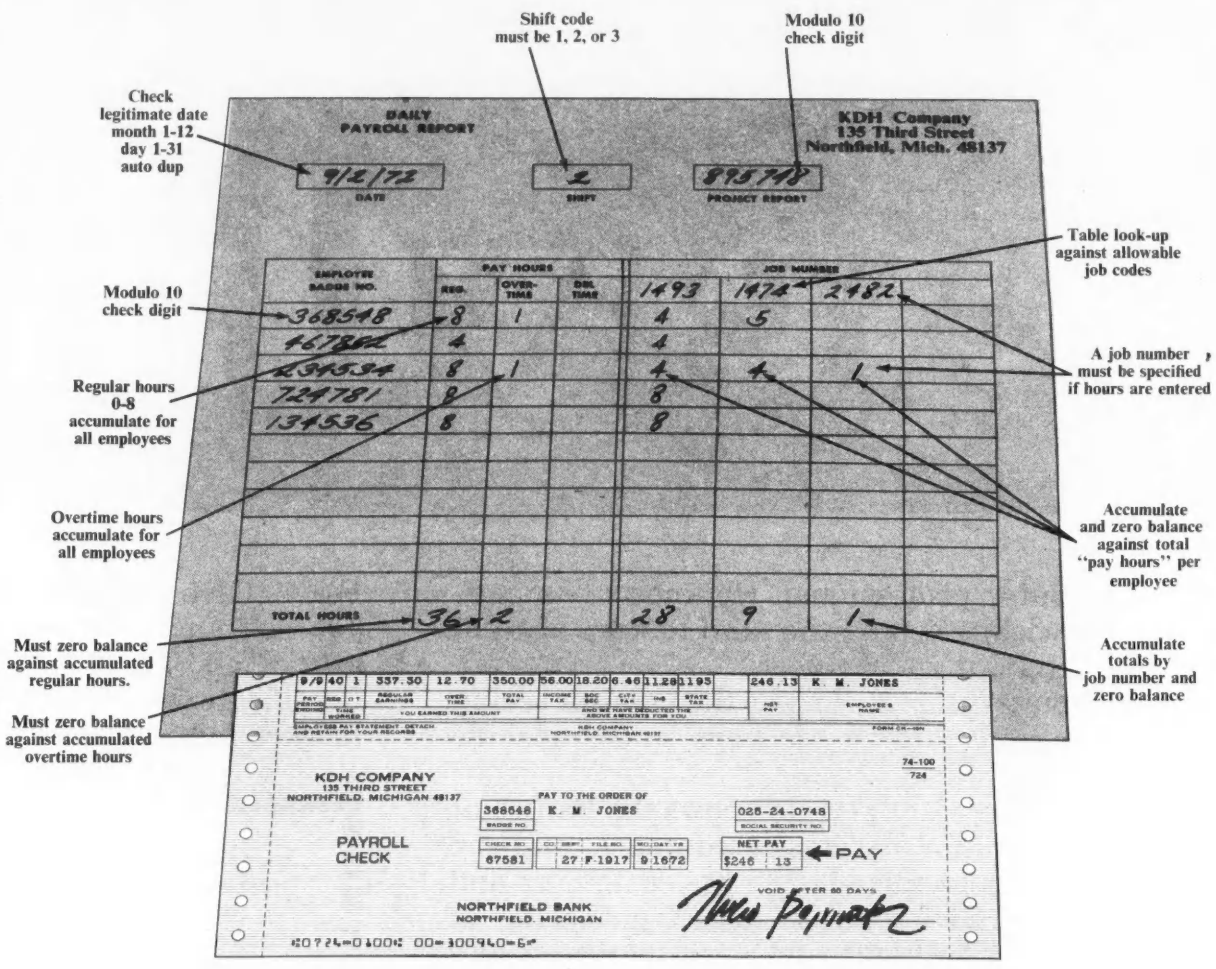

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ANAHEIM – DECEMBER 5-7

Airline Uses Video, Texts, Tutorials To Build Popular, Effective Training

By Don Leavitt
Of the CW Staff

NEW YORK – Video-assisted instruction (VAI) is a good tool, but it has its limitations and is only 20% of American Airline's in-house education program, according to Jack E. Beirne, the airline's DP training coordinator.

Textbooks are also useful, but the main ingredient in a good program is a regularly scheduled "tutorial" session between student and trainer. All of American's training is done on company time, so that all concerned know the company cares about the results, he added.

Thus far, about 300 out of 500 technical level DP people have taken company courses, and many of them have taken several, so Beirne's approach appears to be sound.

American's present program began to take shape in earnest about two years ago, when the full impact of IBM's unbundling of education and other services became apparent. The airline's problems were much like those of other users, Beirne said, but they were complicated by staff size and distance.

The staff, now numbering some 750, is spread out in three separate data centers, in Lake Success and Briarcliff, N.Y., and in Tulsa, Okla. Beirne wanted to provide uniformity of training, without a heavy staff overhead.

Enter Video Tapes

He saw video tapes as an ideal way to get the fundamental lessons across, but realized that they wouldn't demand enough of the students to keep their interest. On-the-spot instructors would be needed to make the material really understandable, but he couldn't justify the cost of full-time trainers in each site.

Instead, Beirne's office put together as complete an instructor's guide as they could, covering everything from how to encourage workers to sign up, to planning where the classes can

Education

be held, and on to details of how American would issue certificates and update employee records whenever they completed a course.

The guide also covered lesson-by-lesson the purpose of each course and gave suggestions of how to get points across most effectively.

Courses now available cover six major areas: computer overviews, programming languages, systems design and analysis, operating systems, computer operations, and communications.

There are 32 courses in the current "catalog" and they utilize audio cassettes and workshop give-and-take environments, as well as VAI to accomplish their goals. They range in length from 60 hours for Assembler Language coding, Systems Analysis, or OS Job Control Language, down to one hour for data entry.

Develops Own Tapes

American has acquired many of its video tapes from Advanced Systems Inc. but went further. To provide lessons on projects peculiar to the airline, Beirne developed some tapes of his own.

A one hour session on teleprocessing at Sabre I, and a 30 hour workshop on Sabretalk cover points that just aren't available from outside sources, the coordinator said.

All this has been accomplished by Beirne and a staff assistant here in New York City, one full time trainer at Lake Success and two more out at Tulsa, plus a "number of willing part timers at all locations."

Cover Concepts

The airline has been unsuccessful in establishing fixed in-house programming standards and so the lessons on languages cover concepts and techniques rather than absolute rules.

The standards are considered impractical, Beirne said, since each of the data centers is dedicated to specific applications and what might suit one could be inappropriate for another.

Lake Success, for example, handles finance and accounting work, whereas Tulsa is responsible for the new Sabre II reservation system and maintenance engineering. Briarcliff oversees freight and flight planning, while a New York City center is limited almost entirely to message-switching.

In addition to the formal courses, Beirne has recently developed and presented a two-and-a-half day seminar to the airline's top executives to help them understand the DP system cycle.

He had to build a case study to illustrate the five steps of planning, analysis, design, implementation and evaluation.

Using multi-colored overhead projector "foils," he made his points by walking the executives through the development of the DC-10, wide-bodied jet that is just now beginning to enter service. The session apparently succeeded: he has been asked to repeat it later this autumn, for a group of international airlines.

Course to Study Urban Problems

LOS ANGELES – City planners, social analysts and others interested in gaining insight into how DP can be used to help solve some urban problems, may enroll in a week-long "Continuing Education" engineering course to be held Oct. 23-27, at UCLA.

Entitled "Computer Assisted Urban Planning: Tools and Applications," the course will include discussions on data access and preparation, census data use and data analysis. Computer mapping will also be covered.

Fee for the course is $325.

College OKs Credits For Work at CDI

CHICAGO – Graduates of Control Data Institute now can earn credit towards an associate degree in business administration at the Central YMCA Community College here. An agreement between the school and Control Data will allow CDI graduates from 6 to 21 credits towards the degree, depending on the courses they took at the institute.

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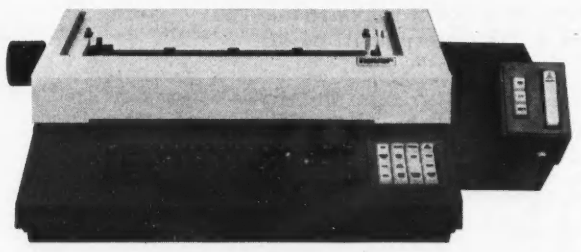

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- Many U.S. companies are experiencing a greater return on marketing investments in Europe than in their domestic efforts.
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- A large number of government and nongovernment institutions exist solely to serve the needs and objectives of companies wanting to develop export markets.
- There are cost-effective programs which allow your company to seize marketing opportunities in Europe.

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IDC now brings the facts about EDP exports right to your city.

IDC's European Marketing Seminars Schedule:

Boston	Monday, Oct. 16 Waltham Holiday Inn
New York	Tuesday, Oct. 17 The Pierre
Chicago	Wednesday, Oct. 18 O'Hare Marriott
San Francisco	Thursday, Oct. 19 Cabana Hyatt House
Los Angeles	Friday, Oct. 20 International Hotel

Seminar time, each city: 9 AM to Noon. Lunch follows.

This seminar is structured to allow a meaningful exchange between our panel experts and corporate executives who want to learn more about the European EDP market. As a result, we must limit the number of attendees. So, if you want to discover the overwhelming market opportunities awaiting you in Europe, we urge you to complete and mail the enclosed Reservation Blank immediately.

Registration: Registration must be made in advance, but may be made up to the time of the seminar, subject to confirmation. Telephone registrations will be accepted.

Fee: The entire fee for the seminar, including lunch and pre-lunch refreshments, is $25 per person.

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CI Notes

Univac Plans Best Year

MIAMI BEACH – Univac will have its best year ever during the current fiscal year, President Gerald G. Probst told a users meeting here last week.

"If present trends continue, we expect this year to produce the largest booking and revenues in Univac's history," Probst forecast, noting Univac revenues had increased at an average annual rate of 15% since 1960.

Probst also said the firm had more new equipment under development during the past 18 months than in any other comparable time in its history.

National Data Net Cleared

WASHINGTON, D.C. – The Federal Communications Commission has granted MCI Communications Corp. the authority to begin construction of 3,000 miles in its proposed national microwave network for data users.

MCI said it plans to have links between Chicago and New York, New York and Washington, Boston and New York and St. Louis and Dallas completed by next fall, in addition to its present Chicago-to-St. Louis link. Eventually the system will cover more than 11,610 miles and will cost over $80 million.

Burns Back in Business

NEWPORT BEACH, Calif. – Al Burns, designer of the ill-fated Gemini computer for Computer Operations Inc., is back in the business with a new company, Compatible Processing Units Inc.

The firm plans to specialize in the development of "several" products in the channel area to enhance 360 or 370 equipment, especially by allowing 370 peripherals to be tied to 360 gear, Burns said.

The firm will not build or market the units directly, but instead will design them for other firms with manufacturing and marketing capabilities in a move to keep costs down and provide early profits.

Supershorts

The General Services Administration has formally inaugurated service on its automated data and telecommunications network which utilizes Computer Science Corp.'s nationwide Infonet network.

– – –

Varian Data Machines has assigned Tekdata Inc. the New England marketing rights to its line of Statos printer/plotter products.

– – –

Hughes will build a ballistic computer system that uses a prototype laser rangefinder in one of the more science fiction-like schemes developed for the U.S. Army's improved main battle tanks.

But With Wariness

Independents Welcome IBM's Entry Unit

By E. Drake Lundell Jr.
Of the CW Staff

NEWTONVILLE, Mass. – Data entry equipment manufacturers have welcomed IBM into the non-keypunch key entry industry, but not with what would be described as "open arms" even by the most charitable observer.

"It's better to have them in the market than not," one said last week. "But they will be hard to compete against if they ever bring the 3740 [CW, Oct. 4] to the U.S. – just because of their size and large equipment, base," he added.

The major reason for the welcome given to IBM is that many users will not fully accept a new technique until it is endorsed by IBM with a product.

"After years of ignoring this segment of the market, I think it is significant that IBM has now endorsed the concept," according to Dallas Talley, vice-president of General Computer Systems.

"IBM will give this market a real boost," another marketing man said, "just by the fact that it has now recognized a definite user need for equipment that falls in the gap between the keypunch and direct on-line data entry.

"Before this," he said, "they have completely ignored the segment, which scared off many users from turning to this type of equipment even if it met their requirements."

The marketing people from such firms as Computer Machinery Corp., Entrex, Inforex, and Consolidated Computer noted that if IBM decides to penetrate the U.S. market with this type of equipment – a move they all predicted would happen soon – it would probably not affect their sales – at least not immediately.

"The equipment introduced in Europe is definitely aimed at the lower end of the market, the small keypunch shop," Talley explained.

"Most of our equipment is aimed at the higher end of the market – the keypunch shops with a great many keypunch operators and systems."

"Of course," another said, "IBM will sell a lot of equipment to its captive user base, but by lending its credibility to the market it will also open up new market opportunities for the rest of the industry," he added.

While the system initially announced for the European marketplace [CW, Oct. 4] was basically a small system, many figures in the industry noted it also had communications capabilities.

"Apparently this product is sort of an interim device to give users a combination of advantages found with key data entry and on-line communications capability," one said.

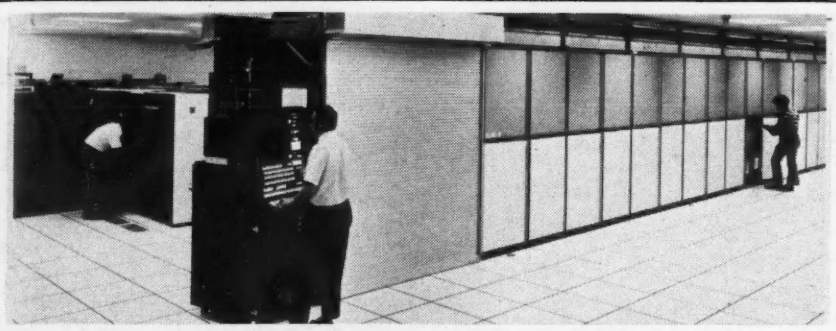
"By offering a product with communications," another said , "IBM may have found a way to ease users into direct on-line entry. The user could go to this type of unit and when his needs grew, he could easily upgrade to direct on-line entry without changing his operation drastically."

One of the advantages of IBM's entry into the market, although on a small scale, is the scope of the education job IBM is able to do, another source said.

"IBM with its vast user base," he said, "can reach more users in a month than all of the independents combined can reach in a year. And there is a great deal of education that has to be done in this area since it forces many firms to change their methods of operation.

"By educating this vast base," he added, "IBM is sure to create some spillover of users that will come to us for equipment after being convinced of the need for it by IBM."

Most of the sources contacted felt the full impact of the IBM move won't be felt for some time both because of the introduction only in Europe at this time and because the delivery dates are fairly far in the future.



Illiac IV Installed

Burroughs has completed the installation of the Illiac IV super computer at Nasa's Ames Research Center in Mountain View, Calif. The Illiac IV uses 64 processing units working in parallel and performing the same calculations on up to 64 different sets of data simultaneously. Burroughs claims the unit can process as many as 200M instruction/sec, a feat it said was 15 to 20 times faster than the largest conventional computer currently available. The system, which weighs over 75 tons and contains over six million components, was built by Burroughs under contract with the University of Illinois which designed the system under contract to the Advanced Research Projects Agency.

Europeans Moving to Consolidate Computer Industries Into One

PARIS – Reports are trickling out of Europe about an imminent move to link the computer industries in the various European countries in order to compete better in world markets, particularly against IBM.

Last week France's Premier Pierre Messmer said that France, the UK and West Germany would combine their technological expertise in the computer area and create a multinational computer complex before the end of this year.

The announcement came as Messmer opened the annual Paris International Computer and Office Equipment Show.

The present agreement between France's subsidized CII and West Germany's Siemens is successful, he said, and would be the basis for future expansion in the computer area.

Presently, he said, there is an Oct. 17 meeting planned between the science ministers from the UK, France and Germany to begin the groundwork for the multinational consortium, with particular emphasis on how the present CII and Siemens agreement could cooperate with International Computers Ltd. of the UK.

The remaining major European computer force not covered by the planned agreement is Philips of The Netherlands, but several sources said last week the agreement could be extended to cover Philips if it wished to participate in the international group.

The combination would come at a time when the international marketplace was particularly strong in terms of growth, several sources said, giving the new organization, if formed, a ready-made market looking for new products and systems.

For example, International Data Corp., a market research firm, reported recently that a study of user budgets in Europe indicated spending will increase between 8% and 18%, depending on the country, in 1972 for EDP hardware, services and salaries.

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User Migration — Part III

New Peripherals Opportunities Seen With IBM 370

By E. Drake Lundell Jr.
Of the CW Staff

NEWTON, Mass. – The user's mass migration to IBM 370 equipment, represents "new opportunities" for the independent peripheral equipment makers, "but the situation isn't quite as simple as it was the first time around," according to International Data Corp. a market research firm here.

"During 1971, the independents marketed to users plug-compatible tape and disk equipment that was cost-effective, flexible, and up to par or better than most IBM performance levels," IDC said. This allowed the independents to place almost $226 million worth of equipment by the end of the year.

This is the third in a series of articles exploring the effects of the user migration from IBM 360 to 370 equipment on various segments of the computer community.

By the end of 1971, this movement had given the independents a penetration of almost 14% of the disk drive market and nearly 18% of the tape drives installed.

Going Gets Tougher

Recent marketing moves by IBM, however, will make the going tougher for the independents, the firm noted.

"IBM in its latest announcement scored two more blows against the independents by bringing integrated controllers to the 3330 and by requiring large and different minimum memories on the two new processors, the 158 and 168," the firm stated.

"By far the largest detriments to the health of the independents," IDC said however, "will be the Fixed Term Lease plan and its successor, the Extended Term Plan (ETP). ETP prevents the independents from immediate penetration as the market builds up," the firm indicated.

Healthy Jump

"Indeed, this two-year 'front-end' lock coupled with an apparent three-to-four year product cycle must look uncomfortable to disk drive manufacturers, since IBM has a healthy jump on competitors," IDC added.

IDC noted, however, that Storage Technology and Telex had managed to keep up with IBM in the tape drive area by announcing compatible units for the 3420, "proving themselves equal to the task of simultaneous penetration of the marketplace."

Even though users were initially leery of IBM's long term lease plans, IDC noted that there is now an "increasing interest in IBM's peripheral lock-in plans."

In the study of 360 and 370 installations, the firm found "bustling activity planning in the tape and disk drive area, mostly a function of 360 market churning as users look to 370 replacements."

The independent vendors of plug compatible units, however, "continue to grab between 10% and 20% of the peripheral marketplace, with higher penetration in the tape rather than disk sector.

"But IDC believes IBM's fixed-term lease plan will attract an increasing number of users. IDC's survey revealed between 60% and 65% of the tape drives upgrading to 3420s and of the disk drives upgrading to 3330s will do so via locking in to IBM's two year lease. Another 15% to 20% will lock in to one year lease arrangements."

But in spite of the new plans, the firm estimated that "the independent contingent will maintain its fair share of the tape and disk drive market, but with penetration levels not greater than 20%."

But while the independents will continue to get a fair share of the market, their "marketing tasks will become quite a bit tougher."

"Most independents agree that IBM's introduction of the 158s and 168s may have increased the 3330-using environment. The new integrated disk control features, however, will appeal particularly to large 370 installations – traditionally the stomping grounds for independents," IDC warned, adding that the new features "pose redesign problems for independents."

Even under the "IBM imposed pressures like fixed term leases and integrated disk control, IDC believes the independents will manage to see significant business through 1975 and 1976."

By 1976, the firm predicted the "independent tape and disk drive business will be worth over $700 million to suppliers," active in the independent peripherals marketplace that are able to overcome the problems associated with selling to the IBM 370 line.

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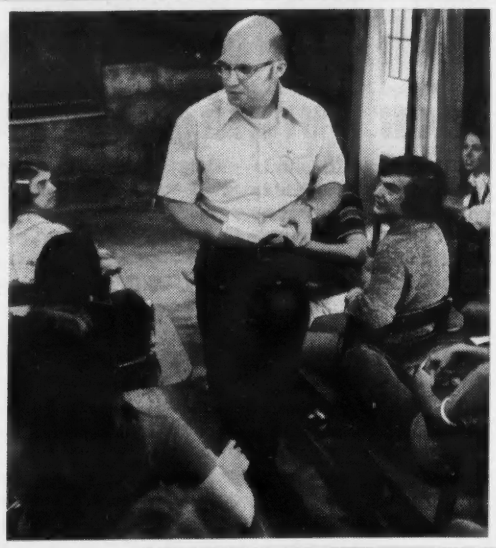
IBM Faculty Loan Program Seen Successful, Expanded

In the appalachian community of Pippa Passes, Ky., over the mountain from Mousie and Possum Trot, Bob L. Warner of IBM teaches a class at Alice Lloyd College on a year's loan from the firm's Data Processing Division.

IBM which inaugurated the faculty loan program last year has expanded it this year to include faculty members at more than 25 different colleges with large minority enrollment.

Under the program, IBM's participating employees are kept on full IBM salary and benefits while teaching and the firm pays their relocation expenses as well as temporary living costs while they are away from home.



Independent Tape, Disk Dealers Do Well Overseas

LONDON – There is great opportunity for independent vendors of disk and tapes in Europe despite the IBM dominance of the market, according to IDC Europa, a market research firm here.

"In the magnetic supplies area, IBM has suffered considerable setbacks," the firm said in a recent report.

"IBM is still of course, the single most important influence on the market although this is as much because of its CPU base – upon which all the independents rely heavily for their own sales – as for its own media sales," the firm added.

In addition, the firm noted that IBM was capable of leading technology – and particularly disk pack technology – in new directions that could affect the plans of other firms in the field.

"In many ways the real market leader is now Memorex, with 21.6% of the disk pack and tape markets, giving it a solid position in each case," the firm said.

The Memorex figures compare to the IBM figures of 32.8% of the disk market and only 16.3% of the tape markets.

IBM Third

While the IBM figures give it first place in the disk market, it is only third in the tape market place, behind Memorex and 3M, which controls 17.2% of the market for tapes in Europe.

BASF, "the only significant European independent," has a 12.6% share of the tape market and a 9.8% share of the disk market. 3M has a 7.4% share of the disk market, the firm noted.

"The picture in the U.K. is slightly different to the overall European one," the firm said, "mainly as a result of ICL's dominance."

"ICL does not manufacture magnetic media; instead it markets material purchased from various suppliers and it also 'approves" certain other makes,' the firm explained.

Disk Pack Market

In the disk pack market ICL controls 33.6% in England, which represents a 7.8% share of the total European market, and IBM controls a 21.6% share.

But the independents have made little impression – partly because of ICL's restrictive attitudes – Memorex having a 9.5% share, BASF 4.8%, and 3M 4.4%," the firm added.

In the tape market the situation is different, however, with 3M having 22.4% of the market, ICL an 18.4% share, Memorex 12.4% and IBM only 6.5% share of the market.

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With Better Economy, Software Firms Seen Turning Resources to Problems

INDIANAPOLIS, Ind. – With economic conditions improving, members of the software industry are increasingly turning their attention and resources to industry problems, according to Larry Welke, president of the Software Section of the Association of Data Processing Service Organizations (Adapso).

"The firms have both more time and money, since they don't have to devote all of their efforts to just keeping operating."

Because of this, he said more firms were joining the industry wide group and it expects a membership of around 75 to 80 firms by the National Adapso Conference this October.

Another factor helping to boost membership is the recent merger between the Adapso group and the Association of Independent Software Companies (AISC), he said.

With only one group representing the industry, the firm who wants to get involved is not torn between conflicting groups, Welke indicated.

The merger has also strengthened the group, Welke said, noting that many of the AISC members were large firms with good contacts in the federal government, an area of increasing importance to the software industry.

He noted the industry was interested in any possible settlement of the Justice Department's antitrust suit against IBM.

Presently, he said, the group was meeting to draft a position paper outlining acceptable types of settlement. The draft would be presented for a vote by the membership at the October meeting.

The merger has also added new dimensions to other areas of interest to members of the Software Section of Adapso, including the tax problem (whether or not software should be taxable), government marketing, and proprietary rights in software, he said.

All these issues are slated to be covered at the meeting, Welke added.

Eight Invitational Meetings Planned for OEM Firms

NEWPORT BEACH, Calif. – Eight Invitational Computer Conferences designed for OEM exhibitors have been scheduled for this year starting in Newton, Mass., last week.

The conferences, originated by Century Data Systems as a method for OEM companies to show their wares to limited audiences of designers and engineers around the country, are now under the management of B. J. Johnson Associates here, a firm headed by Beverly Johnson who managed the shows for Century.

The second show in the tour is presently scheduled for Oct. 31 in Cherry Hill, N.J., and the conferences will go to Ft. Lauderdale, Dallas, Los Angeles, Palo Alto, Minneapolis and Toronto at dates to be scheduled later.

Companies signed up for the tour include Data General, Microdata, and General Automation in the minicomputer area; Diva Inc., in peripheral controllers; Century Data Systems, disk units; Pertec, magnetic tape drives; Data Products, line printers; Remex perforated tape readers/punches; Applied Magnetics, head-per-track disk systems; Sykes Datronics, cassette tape transports; Electronic Memories, core/stack memories; and Beehive Electronics, CRT terminals.

Most of the companies in the 1972-73 series participated in past conferences and were extremely pleased with the practical yet low cost marketing approach," according to Johnson.

She said the new tour should be even more successful than the past three because the economic climate has improved in the industry and because of the quality of this year's exhibitors.

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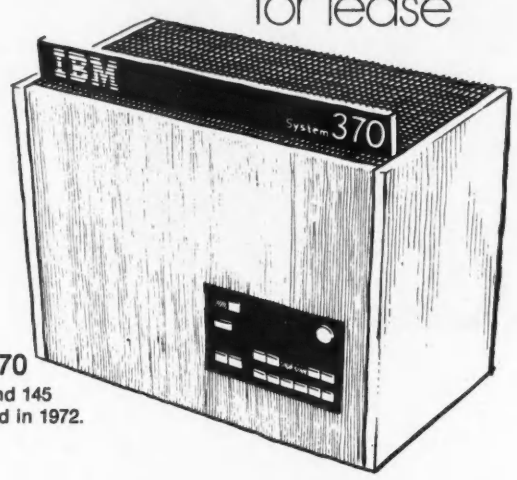

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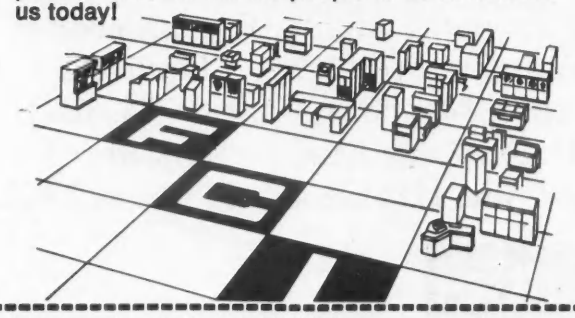

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Commerce Plans Communications Exhibit for French DP Market

WASHINGTON, D.C. – The Commerce Department is planning a data communications equipment exhibition in the "dynamic" French market for March 12-16, 1973, the Department's Bureau of International Commerce said recently.

"Strong French demand for U.S. EDP equipment and communications peripherals, improved U.S. price competitiveness (due to the recent devaluation) and a marked U.S. technological lead in the field combine to offer U.S. exporters of this equipment excellent marketing opportunities," the department said.

Particularly good opportunities exist for firms marketing terminals, message-switching equipment, data-multiplexing equipment, high-speed teleprinters, teletypewriters, minicomputers with multiline multiplexers, test and measurement equipment and applications software.

In addition, there is also a growing market for subassemblies of data communications equipment, the department said.

Research indicates "France is the fifth largest market for U.S. products, with French imports from the U.S. amounting to $1.8 billion in 1971."

The French Government, the department noted, "has initiated an active program to modernize the telecommunications system. By 1975, the French Postes Telegraphie Telecommunications (i.e., the French Post Office, which runs the telephone service) expects some 30,000 circuits for data transmission will be in service, an annual growth rate of 50% to 80%."

The U.S. is presently the largest exporter of communications gear to France, the group said, with exports of data equipment valued at $5 million in 1970, along with $1 million in test equipment and $6 million worth of subassemblies.

Exports of data communications equipment from the U.S. to France are expected to increase by as much as 50% annually over the next three years, the department said, indicating exports of test equipment would grow by 10% to 15% yearly during the same time span.

Orders & Installations

On-Line Systems, Inc., Pittsburgh, has ordered three additional Decsystem-10s from Digital Equipment Corp. Two of the units will be 1070s, and will be interfaced to the firm's own time-sharing operating systems.

The Air Force has ordered a Univac 1108 multiprocessor system and peripherals for use at the Foreign Technology Division at Wright Patterson Air Force Base.

Pyramid Mills, maker of Christmas tree ornaments in Bessemer City, N.C., has installed an NCR Century 50 for monitoring open orders and for sales analysis, inventory control, invoicing and accounts receivable.

The U.S. Marine Corps has purchased Model TM-1624 tape drives from Ampex Corp. to replace IBM 2401-II, -III and -V units used with IBM 360 computers.

Xerox Corp. has purchased an Information International FR 80 COM Recorder.

Winters National Bank and Trust Co., Dayton, Ohio, has ordered an NCR Century 300 as part of its three-year plan to extensively renovate its internal bank operations.

A Rink's department store in Mount Healthy, Ohio, has installed a Pitney Bowes-Alpex Spice electronic register system with Pepper automatic price-tag readers.

Fisher-Price has ordered a $1.3 million Univac 1106 system for order entry and order status systems, on-line credit and collections inquiries and marketing reports as well as production reports and payroll.

Maryland National Bank of Baltimore has ordered Burroughs B6700 systems to replace two B5500s. Applications will include personal and corporate trust, demand deposit and credit-card accounting, mortgage and installment loans.

The Los Angeles Division of North American Rockwell Corp. has ordered a Source Data Management System from Data Pathing Inc., for industrial reporting applications.

United California Bank, Los Angeles, has ordered a BCS-1000 Teleswitcher Bank Communications System from Computer Control Systems, Inc. for use in funds transfer activity

The Garden Grove Unified School District, Garden Grove, Calif., has installed a Burroughs B4700 as a replacement for a B3500. The new system will be used initially for grade reporting, attendance, accounting, student history, test scoring, enrollment projections and staff planning. The district provides DP services to three adjacent school districts.

Rutgers University has installed two Ampex ECM-67 extended-core memories and two DS-314 disk-storage systems for its IBM 360/67. The system furnishes scientific, administrative and T/S services to more than 20 New Jersey colleges and universities.

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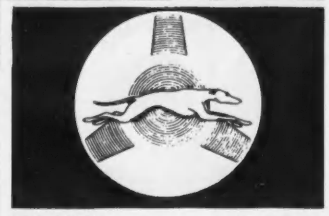

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COMPUTERWORLD

Page 1

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(Act of August 12, 1970: Section 3685, Title 39, United States Code)

SEE INSTRUCTIONS ON PAGE 2 (REVERSE)

1. TITLE OF PUBLICATION: COMPUTERWORLD
2. DATE OF FILING: 9-15-72
3. FREQUENCY OF ISSUE: Weekly (except: a single issuecombined for the last week in Dec & first week in Jan)
4. LOCATION OF KNOWN OFFICE OF PUBLICATION (Street, city, county, state, ZIP code) (Not printers): 797 Washington Street, Newtonville, Mass. 02160 (Middlesex)
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers): 797 Washington Street, Newtonville, Mass. 02160
6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER (Name and address): Patrick J. McGovern - 60 Austin Street, Newtonville, Mass. 02160

EDITOR (Name and address): Robert W. Patterson - 797 Washington Street, Newtonville, Mass. 02160

MANAGER EDITOR (Name and address): W. Walter Boyd - 797 Washington Street, Newtonville, Mass. 02160

7. OWNER (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)

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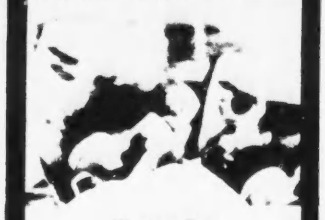

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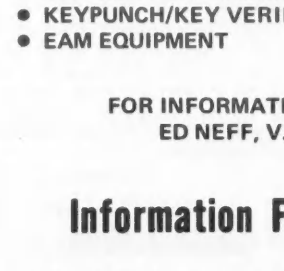

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DPF, Recovering From Huge Writedown, Reports Break Even 1st Quarter Results

NEW YORK – With more and more companies either taking or planning to take huge write-downs on inventories of older equipment it is interesting to see how one leasing company fared in the year after making a large equipment writedown.

DPF reported last week that its income for the first quarter ended Aug. 31 was essentially at the breakeven point, a decided difference from the same quarter a year ago when the firm changed its accounting and wrote down over $40 million in inventory of IBM 360 equipment.

The earnings for the quarter amounted to $20,000, negligible on a per share basis, compared to a loss in the same year-ago period of $34.3 million, the firm reported.

At the same time, the firm noted revenues in the quarter slipped from the $11.7 million registered a year ago to $8.9 million in the same quarter this year.

The total writedown on its computer inventory last year resulted in DPF charging $42.7 million against last year's earnings, but this charge was partially offset by an almost $8 million tax credit.

For all of last year, the firm reported a loss of $34.7 million on revenues of $42.3 million, compared to the 1971 year when the firm showed earnings of $5.5 million on revenues of $48 million.

Under the new depreciation rules, DPF has revised the book value of its IBM 360 inventory so it will be completely depreciated by June 1979.

Through that period, DPF said it will probably report no profit – and hopefully no losses – on its computer leasing operations.

The quarter's results were announced at the annual meeting by Bertram J. Cohn, chairman and chief executive officer, who also reported the firm had paid down almost $8 million of bank and secured debt and had repurchased $44,000 worth of its 5-1/2% convertible subordinated debentures.

In the future the firm will increase its repurchasing of debentures, he said, although declining to give a date.

Nickels & Dimes

Predictions: **Control Data** computer operations will again help keep the firm in the black in the third quarter, and CDC expects to show "progress" compared with earnings levels in the first half of the year.

Honeywell's third-quarter earnings will fall short of the year earlier figures, primarily because of a strike since July at plants in Scotland. The factories produce computers, industrial controls, switches and temperature-control equipment for the European market.

$$$

Too hot? A representative of **Computer Terminal** was scheduled to testify at the Securities and Exchange Commission hearings on "hot issues." The hearings are focusing on processes used in distributing and trading of certain speculative stocks, and prospectus delivery practices.

$$$

Pitney Bowes and Alpex Computer are continuing financing of their joint venture, **Pitney Bowes-Alpex**, to the tune of up to an additional $12 million. Pitney Bowes will advance funds to the offspring in return for senior notes, and Alpex Computer has until Dec. 31, 1973, to buy 50% of the notes from Pitney Bowes.

$$$

Mohawk Data Sciences' order backlog rose from $64.5 million at the end of April to $84.8 million in August. But since 85% of the backlog is in rental market, the increase will have little effect on earnings for the next two quarters. President Richard P. Rifenburgh predicted the fourth quarter will be the best of the year, which he expects will be profitable.

$$$

Order rates are increasing at **Scan-Data**, which received 17 system orders in the first half of the year, compared with four in the 1971 period. Backlog has risen to 13 systems as of June 30.

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Leasing News...

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—— RCC ——

TWO NEW SALES MANAGERS . . . join Randolph's Eastern Region marketing in step with plans to expand its 360 and 370 computer leasing activities. Headquartered in Hartford, Conn., Mr. Joseph B. Kelly, Jr., who had been Univac's branch manager in S. Conn., marketing that company's Series 70. Southern Georgia and Florida marketing region is now managed by Mr. K. Cameron LeVan, Jr., formerly associated with RCA as Senior Sales Rep. in Jacksonville, Fla. Mr. LeVan operates out of Randolph's Atlanta office at 230 Peachtree Center.

—— RCC ——

DEMAND FOR 360 . . . equipment still remains high despite the migration of EDP users to 370, and a healthy marketplace will exist for some time to come. Cost-conscious users are attracted by the price performance 360's offer when running applications not requiring the additional capabilities of 370.

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Atlanta, Washington, Philadelphia, Wilmington

TRADE*QUOTES

Computerworld Stock Trading Summary

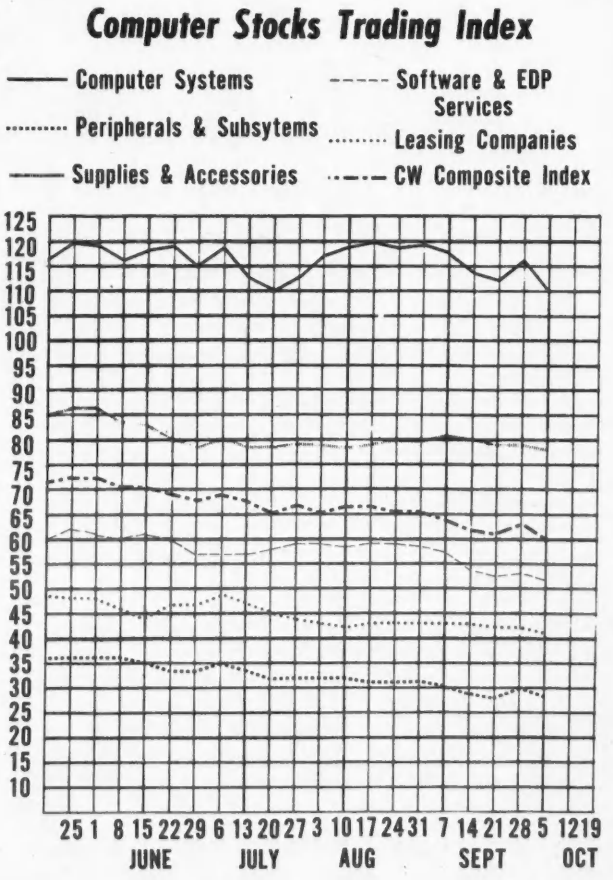
All statistics compiled, computed and formatted by TRADE*QUOTES, INC. Cambridge, Mass. 02139

CLOSING PRICES THURSDAY, OCTOBER 5, 1972

EXCH		1972 RANGE (1)	CLOSE OCT 5 1972	WEEK NET CHNGE	WEEK PCT CHNGE
	SOFTWARE & EDP SERVICES				
O	ADVANCED COMP TECH	1- 3	2 3/8	- 1/2	-17.3
A	APPLIED DATA RES.	4- 7	4	- 5/8	-13.5
O	APPLIED LOGIC	1- 4	2 1/2	- 1/8	-4.7
N	AUTOMATIC DATA PROC	72- 99	89 3/4	-3 1/8	-3.3
O	BRANDON APPLIED SYST	1- 2	1 1/8	0	0.0
O	COMPUTER DIMENSIONS	6- 14	6 3/4	0	0.0
O	COMPUTER DYNAMICS	1- 4	7/8	0	0.0
O	COMPUTER NETWORK	4- 7	4 1/4	- 3/4	-15.0
N	COMPUTER SCIENCES	5- 10	5 1/8	- 3/8	-6.8
O	COMPUTER TASK GROUP	1- 2	1	0	0.0
O	COMPUTER TECHNOLOGY	4- 8	4	0	0.0
O	COMPUTER USAGE	7- 14	9 1/4	+ 1/4	+2.7
O	COMP AUTOMOT REPORTS	5- 9	5 3/4	+ 5/8	+12.1
N	COMPUTING & SOFTWARE	14- 28	15	- 1/4	-1.6
O	COMRESS	1- 3	1 1/4	0	0.0
O	COMSHARE	5- 10	6 3/8	- 1/8	-1.9
O	DATATAB	5- 9	4 3/4	+ 1/4	+5.5
O	EDP RESOURCES	3- 8	2 7/8	- 1/8	-4.1
A	ELECT COMP PROG	2- 5	1 1/2	0	0.0
N	ELECTRONIC DATA SYS.	43- 65	56	+1	+1.8
O	INFORMATICS	5- 11	5 3/8	- 3/8	-6.5
O	I.O.A. DATA CORP	1- 3	1 1/8	- 1/8	-10.0
O	KEANE ASSOCIATES	4- 7	4	- 1/4	-5.8
O	KEYDATA CORP	7- 13	12 1/2	+ 1/2	+4.1
O	LOGICON	4- 9	6 1/4	- 1/8	-1.9
A	MANAGEMENT DATA	5- 10	5	- 1/8	-2.4
O	NATIONAL CSS INC	8- 28	25 5/8	+ 1/8	+0.4
O	NATIONAL INFO SRVCS	2- 5	1 7/8	+ 1/8	+7.1
P	ON LINE SYSTEMS INC	8- 20	22	+2	+10.0
N	PLANNING RESEARCH	7- 17	7 1/4	- 1/2	-6.4
O	PROGRAMMING METHODS	20- 24	21 1/2	0	0.0
O	PROGRAMMING & SYS	1- 2	1 1/8	- 1/8	-10.0
O	RAPIDATA INC	5- 25	23 1/2	+1 1/2	+6.8
O	SCIENTIFIC COMPUTERS	2- 4	2	0	0.0
O	SIMPLICITY COMPUTER	1- 5	4 1/8	- 1/8	-2.9
O	TBS COMPUTER CENTERS	4- 6	3 1/2	-1	-22.2
O	TCC INC	1- 3	1 1/8	0	0.0
O	TYMSHARE INC	7- 11	8	- 3/4	-8.5
O	UNITED DATA CENTER	5- 8	6	0	0.0
N	UNIVERSITY COMPUTING	13- 26	13 1/8	-1	-7.0
A	URS SYSTEMS	6- 10	7 7/8	- 1/2	-5.9
	PERIPHERALS & SUBSYSTEMS				
N	ADDRESSOGRAPH-MULT	34- 49	39 5/8	-1	-2.4
O	ADVANCED MEMORY SYS	12- 23	13 5/8	- 3/4	-5.2
N	AMPEX CORP	5- 15	5	- 5/8	-11.1
O	ANDERSON JACOBSON	5- 8	3 7/8	- 3/8	-8.8
O	ATLANTIC TECHNOLOGY	1- 11	3/4	- 1/8	-14.2
O	BEEHIVE MEDICAL ELEC	1- 5	3 3/4	- 1/8	-3.2
A	BOLT,BERANEK & NEW	5- 21	17	-1 7/8	-9.9
N	BUNKER-RAMO	9- 14	9 7/8	- 7/8	-8.1
A	CALCOMP	11- 25	10 1/2	- 7/8	-7.6
O	CAMBRIDGE MEMORIES	9- 15	10 1/2	- 1/2	-4.5
O	CENTRONICS DATA COMP	11- 53	38	-1	-2.5
O	COGNITRONICS	2- 5	3 1/4	+ 1/2	+18.1
O	COMPUTER COMMUN.	1- 7	1 7/8	- 1/4	-11.7
A	COMPUTER EQUIPMENT	3- 4	2 3/4	+ 1/8	+4.7
O	COMPUTER MACHINERY	7- 13	8 5/8	- 1/8	-1.4
A	COMPUTEST	4- 9	3 1/2	- 3/8	-9.6
A	DATA PRODUCTS CORP	3- 7	3 1/2	+ 1/8	+3.7
O	DATA RECOGNITION	1- 5	1 1/4	0	0.0
O	DATA TECHNOLOGY	2- 5	2 3/4	+ 1/8	+4.7
O	DI/AN CONTROLS	0- 8	4 3/8	- 1/4	-5.4
N	ELECTRONIC M & M	4- 8	3 1/2	- 1/4	-6.6
O	FABRI-TEK	2- 5	2 7/8	0	0.0
O	GENERAL COMPUTER SYS	7- 16	9 1/2	+ 1/2	+5.5
N	GENERAL ELECTRIC	59- 70	64 7/8	-1 1/2	-2.2
N	HAZELTINE CORP	8- 13	7 3/4	- 1/2	-6.0
O	INFOREX INC	20- 36	21 1/2	+ 1/2	+2.3
O	INFORMATION DISPLAYS	1- 5	1 7/8	- 1/4	-11.7
A	LUNDY ELECTRONICS	9- 14	9	-1 3/8	-13.2
O	MANAGEMENT ASSIST	1- 2	3/8	- 1/8	-25.0
N	MEMOREX	16- 38	19 1/8	- 1/4	-1.2
A	MILGO ELECTRONICS	17- 44	22 1/4	-3 1/4	-12.7
N	MOHAWK DATA SCI	14- 27	14 3/8	-1 7/8	-11.5
O	OPTICAL SCANNING	7- 16	7 1/4	-1 1/2	-17.1
O	PERTEC CORP	8- 17	9 1/8	- 3/8	-3.9
O	PHOTON	6- 15	6 3/4	- 3/8	-5.2
A	POTTER INSTRUMENT	7- 21	7	-1 3/8	-16.4
O	PRECISION INST.	4- 13	4 1/2	- 1/4	-5.2
O	RECOGNITION EQUIP	5- 15	5 5/8	- 7/8	-13.4
N	SANDERS ASSOCIATES	13- 21	14 1/2	- 1/8	-0.8
O	SCAN DATA	7- 13	6 5/8	- 7/8	-11.6
O	STORAGE TECHNOLOGY	17- 39	27 3/8	- 1/4	-0.9
O	SYCOR INC	7- 11	10 3/4	0	0.0
O	TALLY CORP.	8- 15	12	0	0.0
N	TEKTRONIX INC	34- 64	52	-1 3/4	-3.2
N	TELEX	6- 15	6 1/2	- 3/4	-10.3
O	WILTEK INC	10- 26	17	+1	+6.2
	SUPPLIES & ACCESSORIES				
O	BALTIMORE BUS FORMS	6- 9	7	0	0.0
A	BARRY WRIGHT	9- 14	11 1/2	- 3/8	-3.1
A	DATA DOCUMENTS	17- 26	20	+ 1/8	+0.6
O	DUPLEX PRODUCTS INC	8- 16	8	0	0.0
N	ENNIS BUS. FORMS	6- 10	6 1/2	0	0.0
O	GRAHAM MAGNETICS	15- 27	16 5/8	- 3/8	-2.2
O	GRAPHIC CONTROLS	12- 15	12 1/4	- 3/4	-5.7
N	3M COMPANY	76- 85	79 1/4	- 1/2	-0.6
O	MOORE CORP LTD	42- 56	54 1/4	+1 1/8	+2.1
N	NASHUA CORP	48- 62	57 1/4	0	0.0
O	REYNOLDS & REYNOLD	37- 77	44 1/2	+ 1/4	+0.5
O	STANDARD REGISTER	14- 20	16 1/8	- 3/8	-2.2
O	TAB PRODUCTS CO	14- 21	21 1/2	+ 1/4	+1.1
N	UARCO	22- 28	21 3/4	+ 1/4	+1.1
A	WABASH MAGNETICS	7- 11	6 7/8	- 1/4	-3.5
N	WALLACE BUS FORMS	21- 26	21 3/4	+ 5/8	+2.9
	COMPUTER SYSTEMS				
N	BURROUGHS CORP	147-226	213 3/8	-9 5/8	-4.3
N	COLLINS RADIO	14- 20	14 3/4	-1	-6.3
N	CONTROL DATA CORP	43- 78	69	-5 3/8	-7.2
O	DATA GENERAL CORP	56-115	105	-7 1/2	-6.6
O	DIGITAL COMP CONTROL	9- 25	9 1/4	-1 3/8	-12.9
N	DIGITAL EQUIPMENT	72-101	91 1/2	-4	-4.1
N	ELECTRONIC ASSOC.	6- 13	8 1/4	- 3/8	-4.3
A	ELECTRONIC ENGINEER.	6- 14	7 1/8	0	0.0
N	FOXBORO	26- 41	27 5/8	- 1/8	-0.4
O	GENERAL AUTOMATION	13- 38	32 1/2	-2 3/4	-7.8
O	GRI COMPUTER CORP	3- 5	3 1/4	- 1/2	-13.3
N	HEWLETT-PACKARD CO	46- 77	69 3/8	-3 1/2	-4.8
N	HONEYWELL INC	122-170	122	-12 5/8	-9.3
N	IBM	333-426	395	-9 1/4	-2.2
O	INTERDATA INC	8- 16	12 3/4	0	0.0
O	MICRODATA CORP	5- 10	8 1/4	+ 1/4	+3.1
N	NCR	29- 38	34 3/8	-3 1/8	-8.3
N	RAYTHEON CO	27- 47	27 3/8	-4	-12.7
N	SPERRY RAND	30- 48	43 3/4	-1 1/8	-2.5
A	SYSTEMS ENG. LABS	9- 16	8 7/8	-1 1/8	-11.2
N	VARIAN ASSOCIATES	14- 22	19 7/8	-1 1/8	-5.3
N	VICTOR COMPTOMETER	15- 24	16 5/8	- 5/8	-3.6
N	WANG LABS.	23- 61	24 3/8	+ 1/4	+1.0
N	XEROX CORP	121-172	154 5/8	+ 1/4	+0.1
	LEASING COMPANIES				
A	BOOTHE COMPUTER	4- 18	4	- 1/8	-3.0
O	BRESNAHAN COMP.	2- 3	1 3/4	- 1/4	-12.5
O	COMDISCO INC	3- 18	15	0	0.0
O	COMMERCE GROUP CORP	5- 11	6 3/8	- 1/8	-1.9
O	COMPUTER EXCHANGE	1- 3	1	0	0.0
A	COMPUTER INVSTRS GRP	8- 14	7 7/8	- 1/8	-1.5
N	DPF INC	5- 13	5 1/4	- 1/2	-8.6
M	DATRONIC RENTAL	2- 4	2	0	0.0
A	DCL INC	5- 10	4 3/4	+ 1/8	+2.7
A	DEARBORN-STORM	16- 26	19 1/2	+ 1/8	+0.6
A	DPA, INC.	5- 8	6 1/4	- 1/8	-1.9
A	GRANITE MGT	5- 11	6	- 1/4	-4.0
A	GREYHOUND COMPUTER	6- 11	6 1/4	- 1/8	-1.9
A	ITEL	7- 12	8	+ 1/4	+3.2
N	LEASCO CORP	17- 24	18 1/8	- 7/8	-4.6
O	LEASPAC CORP	6- 15	6 1/4	-1 3/4	-21.8
O	LECTRO MGT INC	1- 4	2 1/4	- 3/8	-14.2
A	ROCKWOOD COMPUTER	2- 7	2 3/8	0	0.0
O	SYSTEMS CAPITAL	3- 20	14 3/4	+ 7/8	+6.3
N	U.S. LEASING	19- 33	28 3/4	- 1/4	-0.8

EXCH: N=NEW YORK EXCHANGE; A=AMERICAN EXCHANGE
L=NATIONAL EXCHANGE; O=OVER-THE-COUNTER
P=PHIL-BALT-WASH
O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
(1) TO NEAREST DOLLAR

Computer Stocks Trading Index



Earnings Reports

URS SYSTEMS
Three Months Ended July 31

	1972	a1971
Shr Ernd	$.14	$.08
Revenue	5,182,000	4,386,000
Loss Disc Op	.....	18,000
Earnings	367,000	195,000
9 Mo Shr	.33	.18
Revenue	14,505,000	12,338,000
Loss Disc Op	.....	54,000
Spec Cred	.....	26,000
Earnings	855,000	457,000

a-Restated.

STERLING COMPUTER SYSTEMS
Three Months Ended June 30

	1972	a1971
Shr Ernd	$.03	$.03
Revenue	674,328	651,645
Spec Chg	.....	11,779
Earnings	61,191	65,872

a-Restated.

GRAHAM MAGNETICS
Year Ended June 30

	1972	1971
Shr Ernd	$1.13	$1.47
Revenue	9,033,625	7,650,099
aSpec Cred	178,000	517,387
Earnings	917,463	986,754

a-Tax loss carryforward.

INFORMATION DISPLAYS
Six Months Ended June 30

	1972	1971
Revenue	$936,867	$602,831
Loss	21,303	177,477

BALTIMORE BUSINESS FORMS
Six Months Ended June 30

	1972	1971
Shr Ernd	$.28	$.28
Revenue	9,196,000	8,803,000
Spec Cred	a23,000	.....
Earnings	215,000	213,000

a-Gain from sale of land.

Correction

Last week's stock trading summary showed a 233.3% rise in the price of Management Assistance Inc. stock, from 3/8 to 1-1/4. The 1-1/4 price was the preferred stock, not the common stock, which rose from 3/8 to 1/2.

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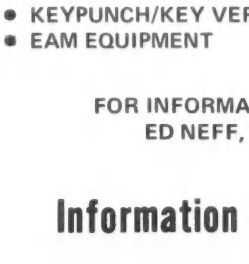

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DPF, Recovering From Huge Writedown, Reports Break Even 1st Quarter Results

NEW YORK – With more and more companies either taking or planning to take huge writedowns on inventories of older equipment it is interesting to see how one leasing company fared in the year after making a large equipment writedown.

DPF reported last week that its income for the first quarter ended Aug. 31 was essentially at the breakeven point, a decided difference from the same quarter a year ago when the firm changed its accounting and wrote down over $40 million in inventory of IBM 360 equipment.

The earnings for the quarter amounted to $20,000, negligible on a per share basis, compared to a loss in the same year-ago period of $34.3 million, the firm reported.

At the same time, the firm noted revenues in the quarter slipped from the $11.7 million registered a year ago to $8.9 million in the same quarter this year.

The total writedown on its computer inventory last year resulted in DPF charging $42.7 million against last year's earnings, but this charge was partially offset by an almost $8 million tax credit.

For all of last year, the firm reported a loss of $34.7 million on revenues of $42.3 million, compared to the 1971 year when the firm showed earnings of $5.5 million on revenues of $48 million.

Under the new depreciation rules, DPF has revised the book value of its IBM 360 inventory so it will be completely depreciated by June 1979.

Through that period, DPF said it will probably report no profit – and hopefully no losses – on its computer leasing operations.

The quarter's results were announced at the annual meeting by Bertram J. Cohn, chairman and chief executive officer, who also reported the firm had paid down almost $8 million of bank and secured debt and had repurchased $44,000 worth of its 5-1/2% convertible subordinated debentures.

In the future the firm will increase its repurchasing of debentures, he said, although declining to give a date.

Nickels & Dimes

Predictions: **Control Data** computer operations will again help keep the firm in the black in the third quarter, and CDC expects to show "progress" compared with earnings levels in the first half of the year.

Honeywell's third-quarter earnings will fall short of the year earlier figures, primarily because of a strike since July at plants in Scotland. The factories produce computers, industrial controls, switches and temperature-control equipment for the European market.

$$$

Too hot? A representative of **Computer Terminal** was scheduled to testify at the Securities and Exchange Commission hearings on "hot issues." The hearings are focusing on processes used in distributing and trading of certain speculative stocks, and prospectus delivery practices.

$$$

Pitney Bowes and Alpex Computer are continuing financing of their joint venture, **Pitney Bowes-Alpex**, to the tune of up to an additional $12 million. Pitney Bowes will advance funds to the offspring in return for senior notes, and Alpex Computer has until Dec. 31, 1973, to buy 50% of the notes from Pitney Bowes.

$$$

Mohawk Data Sciences' order backlog rose from $64.5 million at the end of April to $84.8 million in August. But since 85% of the backlog is in rental market, the increase will have little effect on earnings for the next two quarters. President Richard P. Rifenburgh predicted the fourth quarter will be the best of the year, which he expects will be profitable.

$$$

Order rates are increasing at **Scan-Data**, which received 17 system orders in the first half of the year, compared with four in the 1971 period. Backlog has risen to 13 systems as of June 30.

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Leasing News...

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"VIRTUAL CAPABILITY . . . greatly enhances both the utility and longevity of the 370 line," states Mr. Michael Seekings, Director of Operations at Randolph. "Other major lessors are demonstrating that they share this faith with us. We are aggressively seeking 370 operating leases which offer our customers both savings and flexibility."

—— RCC ——

TWO NEW SALES MANAGERS . . . join Randolph's Eastern Region marketing in step with plans to expand its 360 and 370 computer leasing activities. Headquartered in Hartford, Conn., Mr. Joseph B. Kelly, Jr., who had been Univac's branch manager in S. Conn., marketing that company's Series 70. Southern Georgia and Florida marketing region is now managed by Mr. K. Cameron LeVan, Jr., formerly associated with RCA as Senior Sales Rep. in Jacksonville, Fla. Mr. LeVan operates out of Randolph's Atlanta office at 230 Peachtree Center.

—— RCC ——

DEMAND FOR 360 . . . equipment still remains high despite the migration of EDP users to 370, and a healthy marketplace will exist for some time to come. Cost-conscious users are attracted by the price performance 360's offer when running applications not requiring the additional capabilities of 370.

—— RCC ——

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UCF

UNITED COMPUTER FACILITIES, INC.
Atlanta, Washington, Philadelphia, Wilmington

TRADE*QUOTES

Computerworld Stock Trading Summary

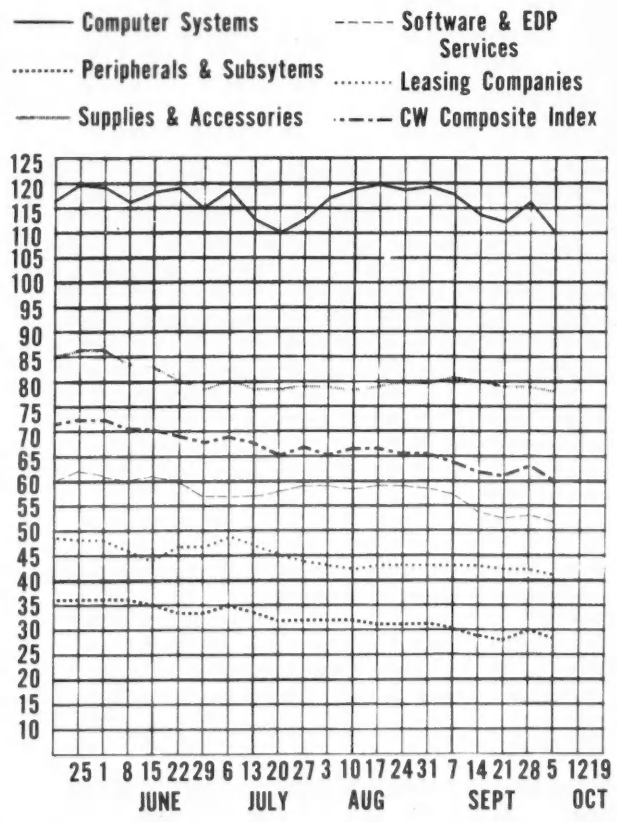
All statistics compiled, computed and formatted by TRADE★QUOTES, INC. Cambridge, Mass. 02139

CLOSING PRICES THURSDAY, OCTOBER 5, 1972

EXCH		1972 RANGE (1)	CLOSE OCT 5 1972	WEEK NET CHNGE	WEEK PCT CHNGE
	SOFTWARE & EDP SERVICES				
O	ADVANCED COMP TECH	1- 3	2 3/8	- 1/2	-17.3
A	APPLIED DATA RES.	4- 7	4	- 5/8	-13.5
O	APPLIED LOGIC	1- 4	2 1/2	- 1/8	-4.7
N	AUTOMATIC DATA PROC	72- 99	89 3/4	-3 1/8	-3.3
O	BRANDON APPLIED SYST	1- 2	1 1/8	0	0.0
O	COMPUTER DIMENSIONS	6- 14	6 3/4	0	0.0
O	COMPUTER DYNAMICS	1- 4	7/8	0	0.0
O	COMPUTER NETWORK	4- 7	4 1/4	- 3/4	-15.0
N	COMPUTER SCIENCES	5- 10	5 1/8	- 3/8	-6.8
O	COMPUTER TASK GROUP	1- 2	1	0	0.0
O	COMPUTER TECHNOLOGY	4- 8	4	0	0.0
O	COMPUTER USAGE	7- 14	9 1/4	+ 1/4	+2.7
O	COMP AUTOMOT REPORTS	5- 9	5 3/4	+ 5/8	+12.1
N	COMPUTING & SOFTWARE	14- 28	15	- 1/4	-1.6
O	COMRESS	1- 3	1 1/4	0	0.0
O	COMSHARE	5- 10	6 3/8	- 1/8	-1.9
O	DATATAB	5- 9	4 3/4	+ 1/4	+5.5
O	EDP RESOURCES	3- 8	2 7/8	- 1/8	-4.1
A	ELECT COMP PROG	2- 5	1 1/2	0	0.0
N	ELECTRONIC DATA SYS.	43- 65	56	+1	+1.8
O	INFORMATICS	5- 11	5 3/8	- 3/8	-6.5
O	I.O.A. DATA CORP	1- 3	1 1/8	- 1/8	-10.0
O	KEANE ASSOCIATES	4- 7	4	- 1/4	-5.8
O	KEYDATA CORP	7- 13	12 1/2	+ 1/2	+4.1
O	LOGICON	4- 9	6 1/4	- 1/8	-1.9
A	MANAGEMENT DATA	5- 10	5	- 1/8	-2.4
O	NATIONAL CSS INC	8- 28	25 5/8	+ 1/8	+0.4
O	NATIONAL INFO SRVCS	2- 5	1 7/8	+ 1/8	+7.1
P	ON LINE SYSTEMS INC	8- 20	22	+2	+10.0
N	PLANNING RESEARCH	7- 17	7 1/4	- 1/2	-6.4
O	PROGRAMMING METHODS	20- 24	21 1/2	0	0.0
O	PROGRAMMING & SYS	1- 2	1 1/8	- 1/8	-10.0
O	RAPIDATA INC	5- 25	23 1/2	+1 1/2	+6.8
O	SCIENTIFIC COMPUTERS	2- 4	2	0	0.0
O	SIMPLICITY COMPUTER	1- 5	4 1/8	- 1/8	-2.9
O	TBS COMPUTER CENTERS	4- 6	3 1/2	-1	-22.2
O	TCC INC	1- 3	1 1/8	0	0.0
O	TYMSHARE INC	7- 11	8	- 3/4	-8.5
O	UNITED DATA CENTER	5- 8	6	0	0.0
N	UNIVERSITY COMPUTING	13- 26	13 1/8	-1	-7.0
A	URS SYSTEMS	6- 10	7 7/8	- 1/2	-5.9
	PERIPHEPALS & SUBSYSTEMS				
N	ADDRESSOGRAPH-MULT	34- 49	39 5/8	-1	-2.4
O	ADVANCED MEMORY SYS	12- 23	13 5/8	- 3/4	-5.2
N	AMPEX CORP	5- 15	5	- 5/8	-11.1
O	ANDERSON JACOBSON	5- 8	3 7/8	- 3/8	-8.8
O	ATLANTIC TECHNOLOGY	1- 11	3/4	- 1/8	-14.2
O	BEEHIVE MEDICAL ELEC	1- 5	3 3/4	- 1/8	-3.2
A	BOLT,BERANEK & NEW	5- 21	17	-1 7/8	-9.9
N	BUNKER-RAMO	9- 14	9 7/8	- 7/8	-8.1
A	CALCOMP	11- 25	10 1/2	- 7/8	-7.6
O	CAMBRIDGE MEMORIES	9- 15	10 1/2	- 1/2	-4.5
O	CENTRONICS DATA COMP	11- 53	38	-1	-2.5
O	COGNITRONICS	2- 5	3 1/4	+ 1/2	+18.1
O	COMPUTER COMMUN.	1- 7	1 7/8	- 1/4	-11.7
A	COMPUTER EQUIPMENT	3- 4	2 3/4	+ 1/8	+4.7
O	COMPUTER MACHINERY	7- 13	8 5/8	- 1/8	-1.4
A	COMPUTEST	4- 9	3 1/2	- 3/8	-9.6
A	DATA PRODUCTS CORP	3- 7	3 1/2	+ 1/8	+3.7
O	DATA RECOGNITION	1- 5	1 1/4	0	0.0
O	DATA TECHNOLOGY	2- 5	2 3/4	+ 1/8	+4.7
O	DI/AN CONTROLS	0- 8	4 3/8	- 1/4	-5.4
N	ELECTRONIC M & M	4- 8	3 1/2	- 1/4	-6.6
O	FABRI-TEK	2- 5	2 7/8	0	0.0
O	GENERAL COMPUTER SYS	7- 16	9 1/2	+ 1/2	+5.5
N	GENERAL ELECTRIC	59- 70	64 7/8	-1 1/2	-2.2
N	HAZELTINE CORP	8- 13	7 3/4	- 1/2	-6.0
O	INFOREX INC	20- 36	21 1/2	+ 1/2	+2.3
O	INFORMATION DISPLAYS	1- 5	1 7/8	- 1/4	-11.7
A	LUNDY ELECTRONICS	9- 14	9	-1 3/8	-13.2
O	MANAGEMENT ASSIST	1- 2	3/8	- 1/8	-25.0
N	MEMOREX	16- 38	19 1/8	- 1/4	-1.2
A	MILGO ELECTRONICS	17- 44	22 1/4	-3 1/4	-12.7
N	MOHAWK DATA SCI	14- 27	14 3/8	-1 7/8	-11.5
O	OPTICAL SCANNING	7- 16	7 1/4	-1 1/2	-17.1
O	PERTEC CORP	8- 17	9 1/8	- 3/8	-3.9
O	PHOTON	6- 15	6 3/4	- 3/8	-5.2
A	POTTER INSTRUMENT	7- 21	7	-1 3/8	-16.4
O	PRECISION INST.	4- 13	4 1/2	- 1/4	-5.2
O	RECOGNITION EQUIP	5- 15	5 5/8	- 7/8	-13.4
N	SANDERS ASSOCIATES	13- 21	14 1/2	- 1/8	-0.8
O	SCAN DATA	7- 13	6 5/8	- 7/8	-11.6
O	STORAGE TECHNOLOGY	17- 39	27 3/8	- 1/4	-0.9
O	SYCOR INC	7- 11	10 3/4	0	0.0
O	TALLY CORP.	8- 15	12	0	0.0
N	TEKTRONIX INC	34- 64	52	-1 3/4	-3.2
N	TELEX	6- 15	6 1/2	- 3/4	-10.3
O	WILTEK INC	10- 26	17	+1	+6.2
	SUPPLIES & ACCESSORIES				
O	BALTIMORE BUS FORMS	6- 9	7	0	0.0
A	BARRY WRIGHT	9- 14	11 1/2	- 3/8	-3.1
A	DATA DOCUMENTS	17- 26	20	+ 1/8	+0.6
O	DUPLEX PRODUCTS INC	8- 16	8	0	0.0
N	ENNIS BUS. FORMS	6- 10	6 1/2	0	0.0
O	GRAHAM MAGNETICS	15- 27	16 5/8	- 3/8	-2.2
O	GRAPHIC CONTROLS	12- 15	12 1/4	- 3/4	-5.7
N	3M COMPANY	76- 85	79 1/4	- 1/2	-0.6
O	MOORE CORP LTD	42- 56	54 1/4	+1 1/8	+2.1
N	NASHUA CORP	48- 62	57 1/4	0	0.0
O	REYNOLDS & REYNOLD	37- 77	44 1/2	+ 1/4	+0.5
O	STANDARD REGISTER	14- 20	16 1/8	- 3/8	-2.2
O	TAB PRODUCTS CO	14- 21	21 1/2	+ 1/4	+1.1
N	UARCO	22- 28	21 3/4	+ 1/4	+1.1
A	WABASH MAGNETICS	7- 11	6 7/8	- 1/4	-3.5
N	WALLACE BUS FORMS	21- 26	21 3/4	+ 5/8	+2.9
	COMPUTER SYSTEMS				
N	BURROUGHS CORP	147-226	213 3/8	-9 5/8	-4.3
N	COLLINS RADIO	14- 20	14 3/4	-1	-6.3
N	CONTROL DATA CORP	43- 78	69	-5 3/8	-7.2
O	DATA GENERAL CORP	56-115	105	-7 1/2	-6.6
O	DIGITAL COMP CONTROL	9- 25	9 1/4	-1 3/8	-12.9
N	DIGITAL EQUIPMENT	72-101	91 1/2	-4	-4.1
N	ELECTRONIC ASSOC.	6- 13	8 1/4	- 3/8	-4.3
A	ELECTRONIC ENGINEER.	6- 14	7 1/8	0	0.0
N	FOXBORO	26- 41	27 5/8	- 1/8	-0.4
O	GENERAL AUTOMATION	13- 38	32 1/2	-2 3/4	-7.8
O	GRI COMPUTER CORP	3- 5	3 1/4	- 1/2	-13.3
N	HEWLETT-PACKARD CO	46- 77	69 3/8	-3 1/2	-4.8
N	HONEYWELL INC	122-170	122	-12 5/8	-9.3
N	IBM	333-426	395	-9 1/4	-2.2
O	INTERDATA INC	8- 16	12 3/4	0	0.0
O	MICRODATA CORP	5- 10	8 1/4	+ 1/4	+3.1
N	NCR	29- 38	34 3/8	-3 1/8	-8.3
N	RAYTHEON CO	27- 47	27 3/8	-4	-12.7
N	SPERRY RAND	30- 48	43 3/4	-1 1/8	-2.5
A	SYSTEMS ENG. LABS	9- 16	8 7/8	-1 1/8	-11.2
N	VARIAN ASSOCIATES	14- 22	19 7/8	-1 1/8	-5.3
N	VICTOR COMPTOMETER	15- 24	16 5/8	- 5/8	-3.6
N	WANG LABS.	23- 61	24 3/8	+ 1/4	+1.0
N	XEROX CORP	121-172	154 5/8	+ 1/4	+0.1
	LEASING COMPANIES				
A	BOOTHE COMPUTER	4- 18	4	- 1/8	-3.0
O	BRESNAHAN COMP.	2- 3	1 3/4	- 1/4	-12.5
O	COMDISCO INC	3- 18	15	0	0.0
O	COMMERCE GROUP CORP	5- 11	6 3/8	- 1/8	-1.9
O	COMPUTER EXCHANGE	1- 3	1	0	0.0
A	COMPUTER INVSTRS GRP	8- 14	7 7/8	- 1/8	-1.5
N	DPF INC	5- 13	5 1/4	- 1/2	-8.6
M	DATRONIC RENTAL	2- 4	2	0	0.0
A	DCL INC	5- 10	4 3/4	+ 1/8	+2.7
A	DEARBORN-STORM	16- 26	19 1/2	+ 1/8	+0.6
A	DPA, INC.	5- 8	6 1/4	- 1/8	-1.9
A	GRANITE MGT	5- 11	6	- 1/4	-4.0
A	GREYHOUND COMPUTER	6- 11	6 1/4	- 1/8	-1.9
A	ITEL	7- 12	8	+ 1/4	+3.2
N	LEASCO CORP	17- 24	18 1/8	- 7/8	-4.6
O	LEASPAC CORP	6- 15	6 1/4	-1 3/4	-21.8
O	LECTRO MGT INC	1- 4	2 1/4	- 3/8	-14.2
A	ROCKWOOD COMPUTER	2- 7	2 3/8	0	0.0
O	SYSTEMS CAPITAL	3- 20	14 3/4	+ 7/8	+6.3
N	U.S. LEASING	19- 33	28 3/4	- 1/4	-0.8

EXCH: N=NEW YORK EXCHANGE; A=AMERICAN EXCHANGE
L=NATIONAL EXCHANGE; O=OVER-THE-COUNTER
P=PHIL-BALT-WASH
O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
(1) TO NEAREST DOLLAR

Computer Stocks Trading Index



Earnings Reports

URS SYSTEMS
Three Months Ended July 31

	1972	a1971
Shr Ernd	$.14	$.08
Revenue	5,182,000	4,386,000
Loss Disc Op	.....	18,000
Earnings	367,000	195,000
9 Mo Shr	.33	.18
Revenue	14,505,000	12,338,000
Loss Disc Op	.....	54,000
Spec Cred	.....	26,000
Earnings	855,000	457,000

a-Restated.

STERLING COMPUTER SYSTEMS
Three Months Ended June 30

	1972	a1971
Shr Ernd	$.03	$.03
Revenue	674,328	651,645
Spec Chg	.....	11,779
Earnings	61,191	65,872

a-Restated.

GRAHAM MAGNETICS
Year Ended June 30

	1972	1971
Shr Ernd	$1.13	$1.47
Revenue	9,033,625	7,650,099
aSpec Cred	178,000	517,387
Earnings	917,463	986,754

a-Tax loss carryforward.

INFORMATION DISPLAYS
Six Months Ended June 30

	1972	1971
Revenue	$936,867	$602,831
Loss	21,303	177,477

BALTIMORE BUSINESS FORMS
Six Months Ended June 30

	1972	1971
Shr Ernd	$.28	$.28
Revenue	9,196,000	8,803,000
Spec Cred	a23,000	.....
Earnings	215,000	213,000

a-Gain from sale of land.

Correction

Last week's stock trading summary showed a 233.3% rise in the price of Management Assistance Inc. stock, from 3/8 to 1-1/4. The 1-1/4 price was the preferred stock, not the common stock, which rose from 3/8 to 1/2.

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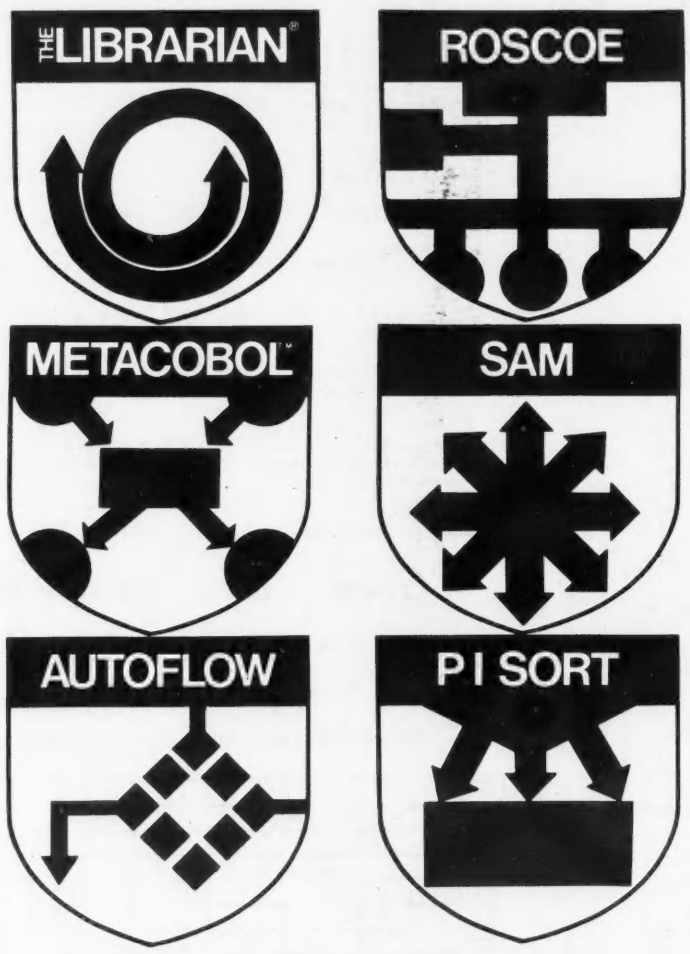

CRUSADE HEADQUARTERS: APPLIED DATA RESEARCH, INC.
Route 206 Center, Princeton, N.J. 08540

Gentlemen: Yes, I'm interested in joining The Great Crusade for Reduced EDP Costs. Please send me more information on: ☐ THE LIBRARIAN ☐ MetaCOBOL ☐ AUTOFLOW ☐ ROSCOE ☐ SAM ☐ PI SORT

Name _____ Title _____

Company _____ Tel. No. _____

Address _____

City _____ State _____ Zip _____

Computer Configuration _____

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